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International Council for
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Meta-analysis of Integrated Economic– Ecological Models for tactic and strategic management advice

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Rational

An economic activity

- Fisheries

Dependant on a biological ressource

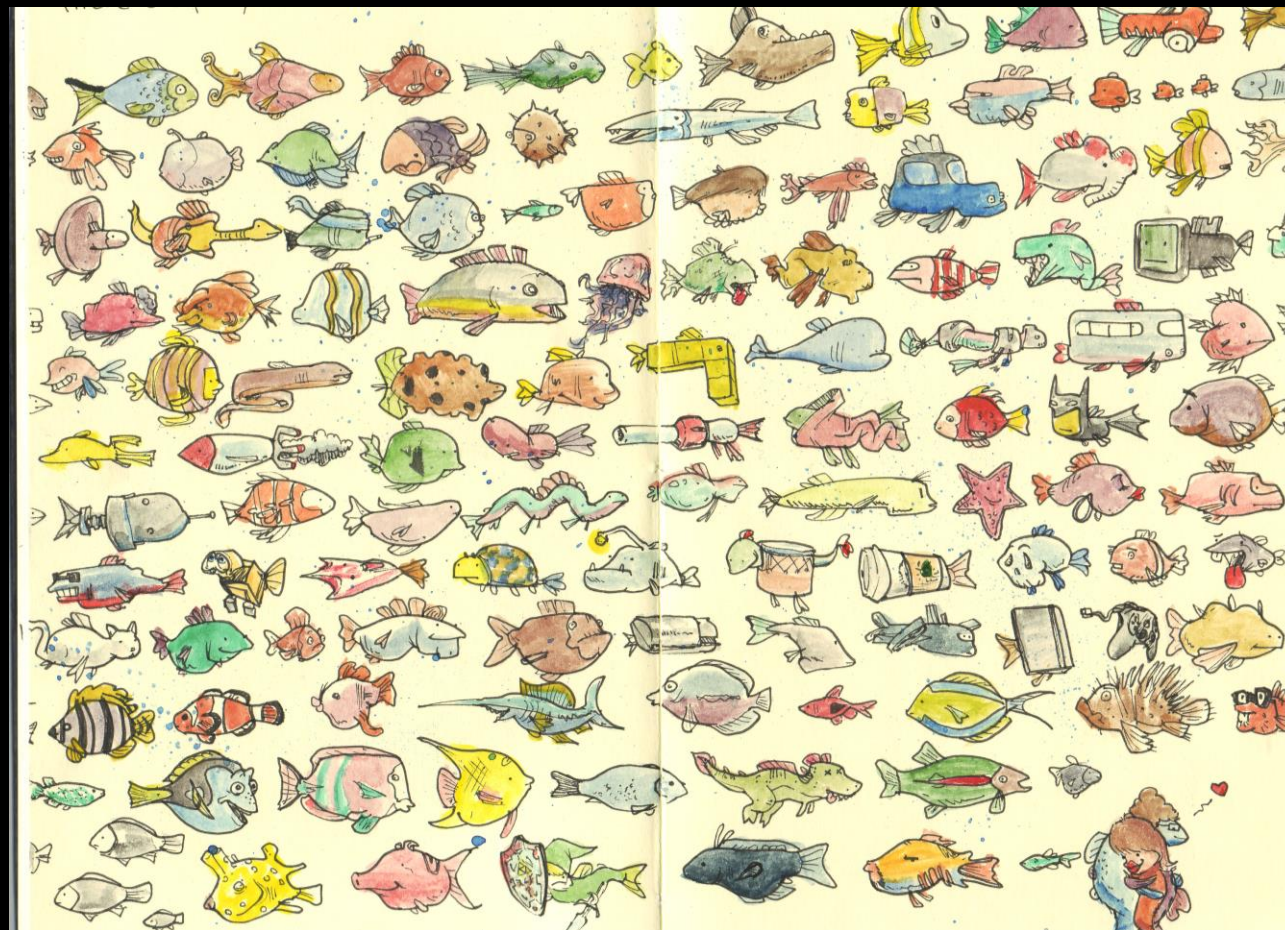
- Fish







Study Group on Integration of Economics, Stock Assessment and Fisheries Management (SGIMM)





The Right Tools for the Right Questions

- Integrated **Ecological**-Economic Models
 - **Ecosystem** (biotic components)
 - **Environment** (abiotic components)
- Technical interactions between fisheries
- Broader socio-economic aspects





Question 1: Purpose



- Models for science
 - → exploring systems, understanding processes
- Models for management advice
 - → exploring trade-offs of different objectives
- → Complexity of the different modules



Study 1/2



- Systematic collection of model characteristics
 - Ecological, economic and social complexity
 - Main area of use
 - Development framework
 - Ease of use
 - Inputs - Outputs
 - Deterministic or stochastic
 - Spatial and temporal scale
 - ...





Study 2/2



- Development of a model matrix
- Collection of different models
- First set of models and first analysis
- Further outreach to incorporate more models





Model characteristics 1/3

scope of the model

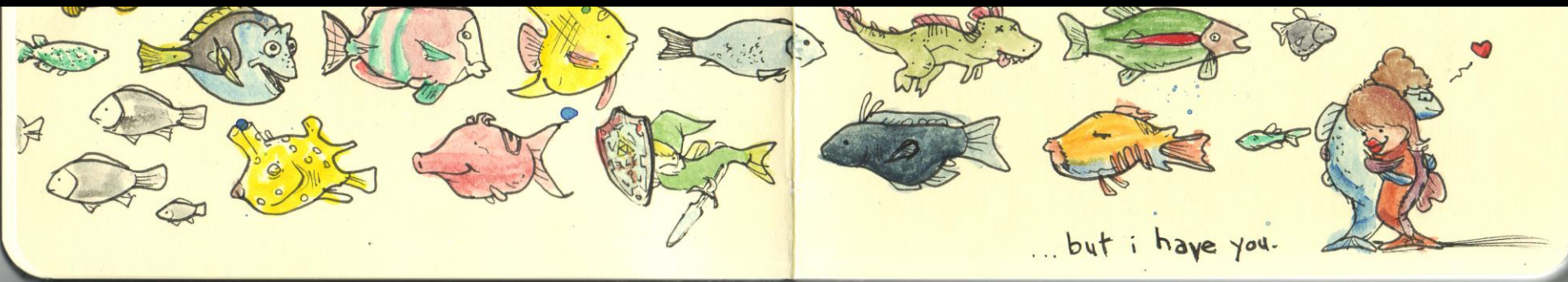
- Only one model is only single species, 10 are considering technical interactions
- Only 3 are going beyond multispecies into ecosystem considerations
- All incorporate socio-economic parameters, but only 1 explicitly social





Model characteristics 2/3 use, degree of implementation

- 10 out of 13 are used outside academia, but only 2 have high implementation
- Half are used in national advice frameworks, 3 coming from the US and 10 from the EU
- 12 out of 13 have been published in peer-reviewed literature

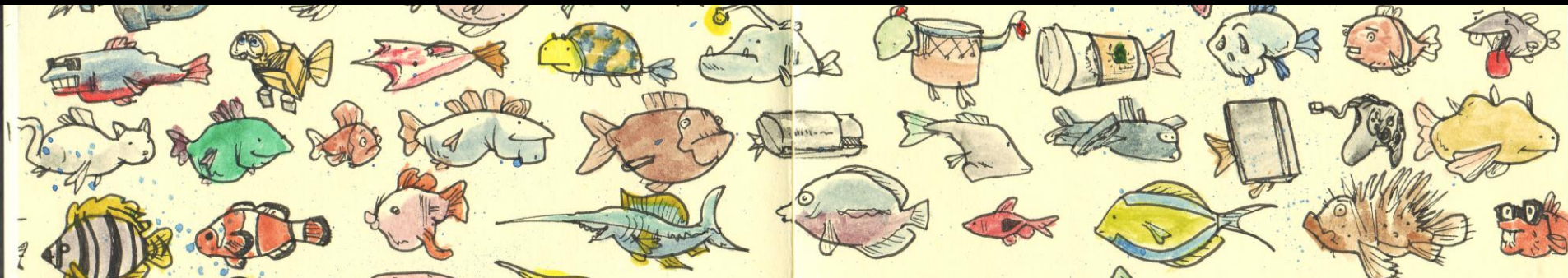




Model characteristics 3/3 easy to use?



- Only 1 out of 13 was judged to be user friendly
- 8 out of 13 can be operated by the developer only, but at least 11 are flexible in use
- 1 is judged simple, 12 as complex
- The youngest model is 1, the oldest 15 years old

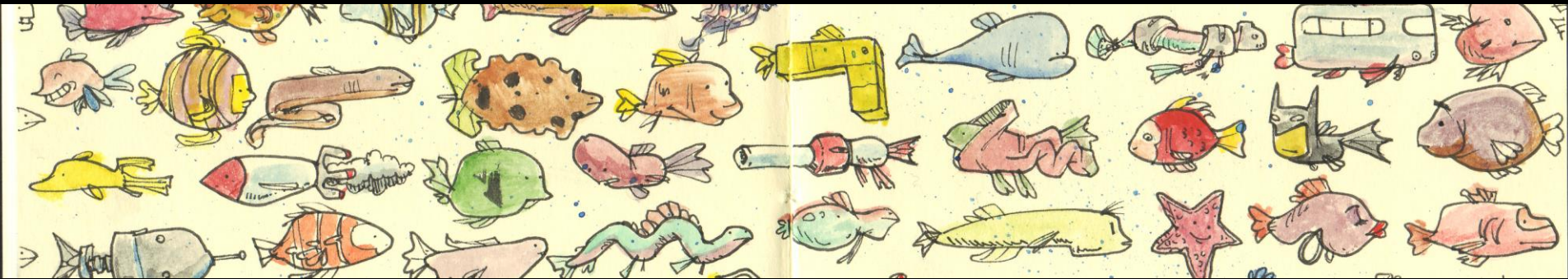




Striving for intermediate complexity?

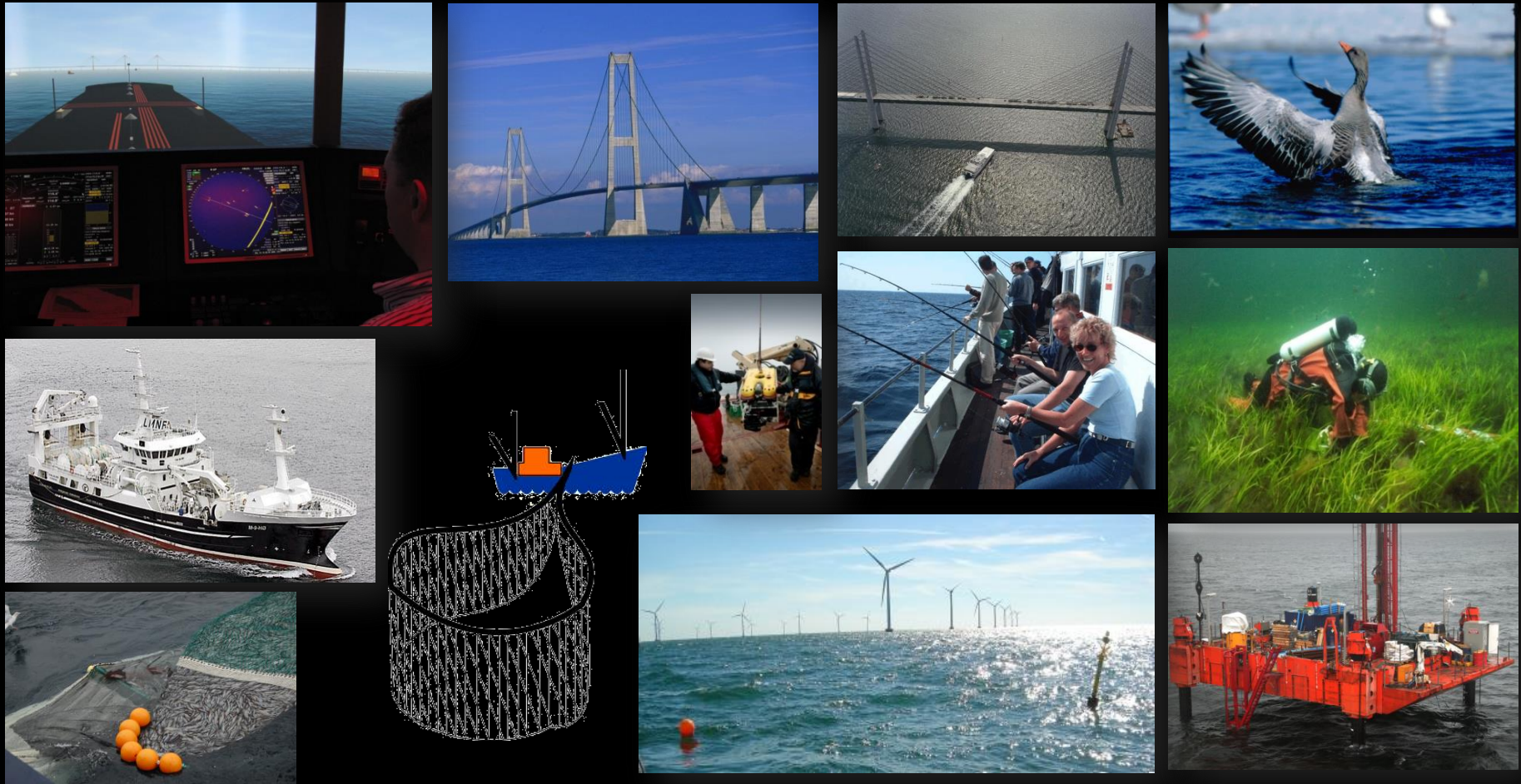


- Not necessarily, still depends on objective!
- Future demand of models to make trade-offs between objectives explicit
- Increasingly complex decisions?



Spatial Planning with cross sector bio-economic impact evaluation of broader marine management

Complex ecosystems and anthropogenic systems to manage with increasing competition for space between different Maritime Sectors with Multiple Objectives and Criteria for Sustainability demanding for more holistic and broader scale integrated and regionalized management and cross sectoral dynamic management evaluation tools which are spatial explicit?





Conclusion

As simple as possible, but not simpler

Albert Einstein



Thank you for
your attention!