

“EFIMAS”

Managing fisheries in a virtual environment in order to provide more reliable scientific advice to stakeholders

European fisheries are not doing well at the moment. Not only are many commercially important fish stocks declining, so are the number of fishing boats and people employed within the fishing industry. Stakeholder confidence in existing assessment and management models has been shaken, since these models currently only consider the effects of fishing on fish stocks and the ecosystem, and do not take into account the social and economic impacts of fisheries management decisions.

To facilitate the development of better fisheries management regimes, a European research project, **EFIMAS**, was launched to develop and integrate a set of new tools into a robust framework within which to **simulate and evaluate the biological, social and economical consequences of a range of fishery management options and objectives within different management regimes**.

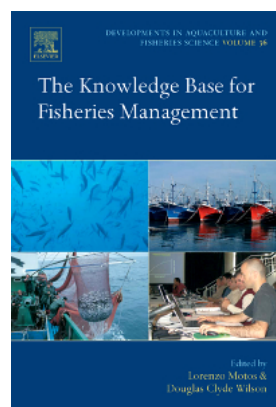
The project involves cooperation between 30 research institutions from all over Europe covering the disciplines of fisheries biology, economy and sociology, and is coordinated by the Danish Institute for Fisheries Research (DIFRES).

state-of-the-art knowledge base for fisheries systems and consequently published this in a book, **“The Knowledge Base for Fisheries Management”**, which is available from Elsevier. Such information provides the background to draw conclusions of what is needed to improve fisheries management.

The tools that are being developed take account of the dynamics in the fisheries systems (including fleet interactions) as well as effects of using e.g. alternative stock and fishery assessment models, economic based fishery models, and also considers uncertainties in the dynamics and in the data collection, assessment, advisory and management processes.

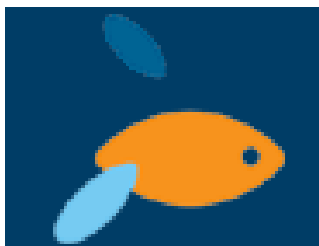
The framework and simulation models are tested in selected case studies covering different types of EU fisheries in different areas:

- Mixed flatfish fisheries, North Sea
- Mixed roundfish fisheries, North Sea
- Salmon fisheries, Baltic Sea
- Mixed nephrops fisheries, East Atlantic
- Mixed northern hake fisheries, ICES VI-VIII
- Swordfish fisheries, Mediterranean



THE EFIMAS
BOOK.

One of the major challenges of the project is to ensure that the best possible knowledge is synthesised and made available to decision-makers. To this extent, some of the project participants have reviewed the



Project acronym:

EFIMAS

Full title of Project:

Operational evaluation tools for fisheries management options

EU contract number:

502516

Web-site:

www.efimas.org

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- Mixed hake fisheries, Mediterranean
- Cod fisheries, Baltic Sea

An overview of the simulation module of the project has been given in the figure on the back in form of a conceptual box flow diagram. The input data to the management system are generated by a descriptive model (operating model), which is assumed to represent the “true/real” system. The input data are then processed by a traditional or an alternative fish stock or fisheries assessment model (knowledge production model), which is used to generate management advice.

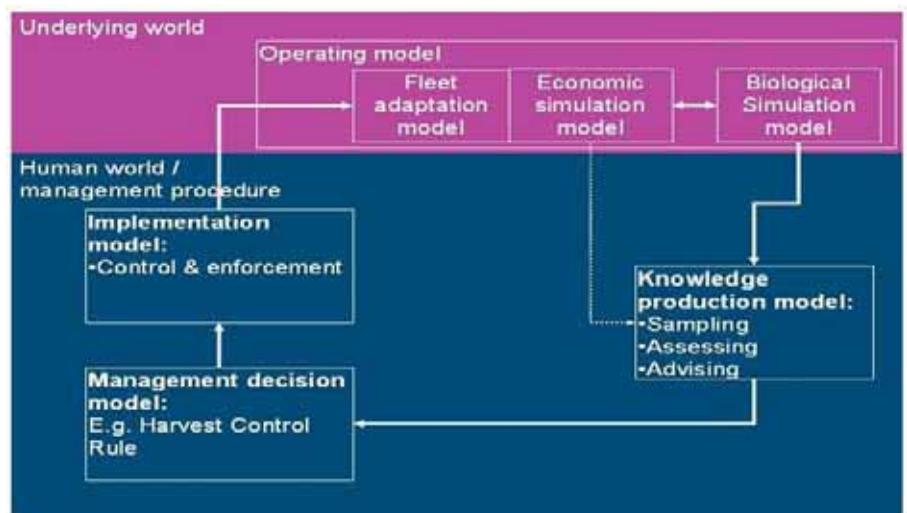
By simulating the effect that the resulting management actions would have on the “true/real” system it is possible to generate a range of performance measures, covering the resource as well as the fishery (such as minimum

mesh size, minimum landing size, closed areas, closed seasons and effort regulations). These performance measures will then enable the comparison of a range of management options under alternative management systems and objectives.

Such a robust management evaluation tool and framework, driven by numerically defined harvesting rules, will enable EFIMAS to provide more reliable scientific management advice to fishery managers.

Moreover, by incorporating a wider range of variables to illuminate the decision process, fisheries management will be made more accessible to all kinds of stakeholders. This will enable the EU to adopt a proactive approach to fishery management and hopefully help to restore the somewhat shaken trust of stakeholders in policy makers.

“THE STATE-OF-THE-ART KNOWLEDGE BASE FOR FISHERIES SYSTEMS HAS BEEN REVIEWED AND CONSEQUENTLY PUBLISHED IN A BOOK”



SIMULATION MODULE OF THE EFIMAS PROJECT. SOURCE: R. NIELSEN.