

“IMAGE”

Indicators for an ecosystem-based approach to fisheries management in Europe

The Common Fisheries Policy (CFP) requires the progressive implementation of an ecosystem-based approach to fisheries management (EBFM). This approach requires that managers take account of a wide range of fisheries impacts when setting objectives. Therefore, attempts to meet these objectives need to be supported by reliable scientific advice and effective management decision making. In recent years, fisheries research has focused primarily on developing indicators to evaluate how well a fishery is managed in relation to such specified objectives. Much less effort has gone into developing approaches for actual fisheries management in an ecosystem context, based on indicators.

The reasons why indicators are relevant to an ecosystem-based approach to fisheries are not always clear. Still less clear are the ways indicators might be used to give management advice in the context of an ecosystem-based approach to fisheries.

However, indicators could support the decision making process by

- (1) describing the pressures affecting the ecosystem, the state of the ecosystem and the response of managers – control indicators,
- (2) tracking progress towards meeting management objectives – performance indicators – and
- (3) communicating trends in complex impacts and management processes to a non-specialist audience – spread indicators.

The project ‘**Indicators for fisheries Management in Europe**’ (IMAGE) seeks to **develop an operational framework of candidate indicators (ecological, economic and social) to support ecosystem-based fisheries management at the regional and pan-European scale**. Operational management objectives will be identified and agreed on, consistent with the higher level (strategic) objectives of the CFP. Existing literature will

be used to identify the fishing impacts that may compromise each operational objective (based on past and present experience and expectations for the future). These impacts will be ranked from high to low probability that they will compromise the achievement of objectives, in order to prioritize the subsequent selection of indicators.

Selected indicators will then be elaborated into comprehensive dashboards, such as current values, trends and reference levels, to support management decision making. Consequently, the project team will develop a methodology for the integration of this information into workable decision support tools and a framework that can evaluate management strategies based on indicators. Finally, taking into account the diversity of the fishery systems in Europe, the applicability of these tools will be tested in four regional case studies: the Baltic Sea, Western Waters (Celtic Sea and Bay of Biscay), the Mediterranean Sea and the North Sea.

An ecosystem-based approach to fisheries means a broad scope encompassing non-target species, habitats and the whole ecosystem; this implies diverse and potentially conflicting uses of a complex shared resource, thus a



Project acronym:

IMAGE

Full title of Project:

Indicators for fisheries management in Europe.

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<http://www.fishindicators.eu>

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diversity of stakeholders. **The application of indicators in management systems thus requires that they are understood by, and therefore accessible to, stakeholders.** For this reason, a major focus of the IMAGE project will be to engage stakeholders through the emerging **Regional Advisory Councils (RAC)**. The project focuses on fishing impacts, even though other environmental pressures might affect resources and fisheries.

IMAGE will thus support the development of an effective EBFM in the context of the CFP, while also contributing to the applied science needed to support the emerging European Marine Strategy and Maritime Policy. Regional collaboration in the project will help to build applied scientific competence in the European research area.

The project results will be disseminated to the EC, the scientific community, stakeholders within RAC areas and science advisory bodies and agencies. The main dissemination routes will be through direct interaction with stakeholders at the RACs, through a website, through peer reviewed publications, through the FLR project (Fisheries Library in R, see <http://flr-project.org/doku.php>, a generic software framework intended to be used to evaluate and develop management

strategies for a broad range of objectives) and through the involvement of project participants in ICES Expert Groups and Advisory Committees and in STECF.

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