Study on Ecosystem-Based Approach to Fisheries Management

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Unit C3: Data Collection and Scientific Advice

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EAFM in the CFP

- The Ecosystem-based Approach to Fisheries Management (EAFM) forms an integral part of the CFP and its objectives since 2002

Regulation (EC) 1380/2013, Article 2.3

> 3. The CFP shall implement the ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimised, and shall endeavour to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment.

- Many ongoing actions but lack “mapping” of ecosystem-based approaches already in place (what has been achieved?)

- Need for more systematic evaluation, to identify gaps and allow progress towards the implementation of EAFM in the EU.

FRAMEWORK CONTRACT:

STUDY ON ECOSYSTEM-BASED APPROACHES APPLIED TO FISHERIES MANAGEMENT UNDER THE CFP

BALTIC SEA,
NORTH SEA,
ATLANTIC EU WESTERN WATERS,
EU OUTERMOST REGIONS

Objectives

- Assess the **current state of implementation of EAFM** with focus on measures and the governance required, in terms of their operational readiness

  (*Not an assesment of performance of EAFM, but instead **assessment of the progress** made from single species management towards and EAFM (**continuum**)).*

- Provide **recommendations to advance the implementation of EAFM** aimed at addressing the identified challenges in order to acheive the objectives of the CFP and other policies

Methods 5 steps EAFM cycle

1 - Defining the frame for EAFM, starting with **its aim to achieve specific policy objectives or societal goals** within the social and environmental context and including the legal setting.

Study tried to identify a number of EAFM challenges that, if addressed, may contribute to achieving these objectives and societal goals.

Note that these objectives and societal goals are often understood to refer to the state of the ecosystem and fishing opportunities but may also involve social or economic objectives/goals.

Methods 5 steps EAFM cycle

1 - Defining the frame for EAFM

2 - **Developing the knowledge base** (which may include scientific as well as local indigenous knowledge) driven by the policy objectives or societal goals to be achieved, the relevant fisheries and potential EAFM measures.

Study aimed to identify the **challenges that require an understanding of the interaction of specific fisheries with the ecosystem** and how this may be mitigated through specific measures.

Methods 5 steps EAFM cycle

1 - Defining the frame for EAFM

2 - Developing the knowledge base

3 - **Assessing and weighing the EAFM alternative scenarios** using the knowledge base and appropriate tools.

This results in scientific advice that identifies preferred management and policy approaches.

Methods 5 steps EAFM cycle

1 - Defining the frame for EAFM

2 - Developing the knowledge base

3 - Assessing and weighing the EAFM alternative scenarios

4 - Implementing a specific management plan based on informed decision-making guided by best practices. This plan is an internally consistent combination of different management measures and policy instruments aimed at achieving a selection of policy objectives for a specific ecosystem and its socio-economic/institutional context

Methods 5 steps EAFM cycle

1 - Defining the frame for EAFM
2 - Developing the knowledge base
3 - Assessing and weighing the EAFM alternative scenarios
4 - Implementing a specific management plan

5 - Following-up with an **assessment of the state of affairs pertaining to the implementation of EAFM**. This includes both the EAFM process, including the preceding steps, as well as its performance in achieving the specific policy objectives or societal goals.

These five stages represent one EAFM cycle where the follow-up step provides the basis for the advancements in the next EAFM cycle (adaptive process).

Methods

Literature review to **identify a hierarchical typology of EAFM challenges** that distinguished three main types of EAFM challenges:

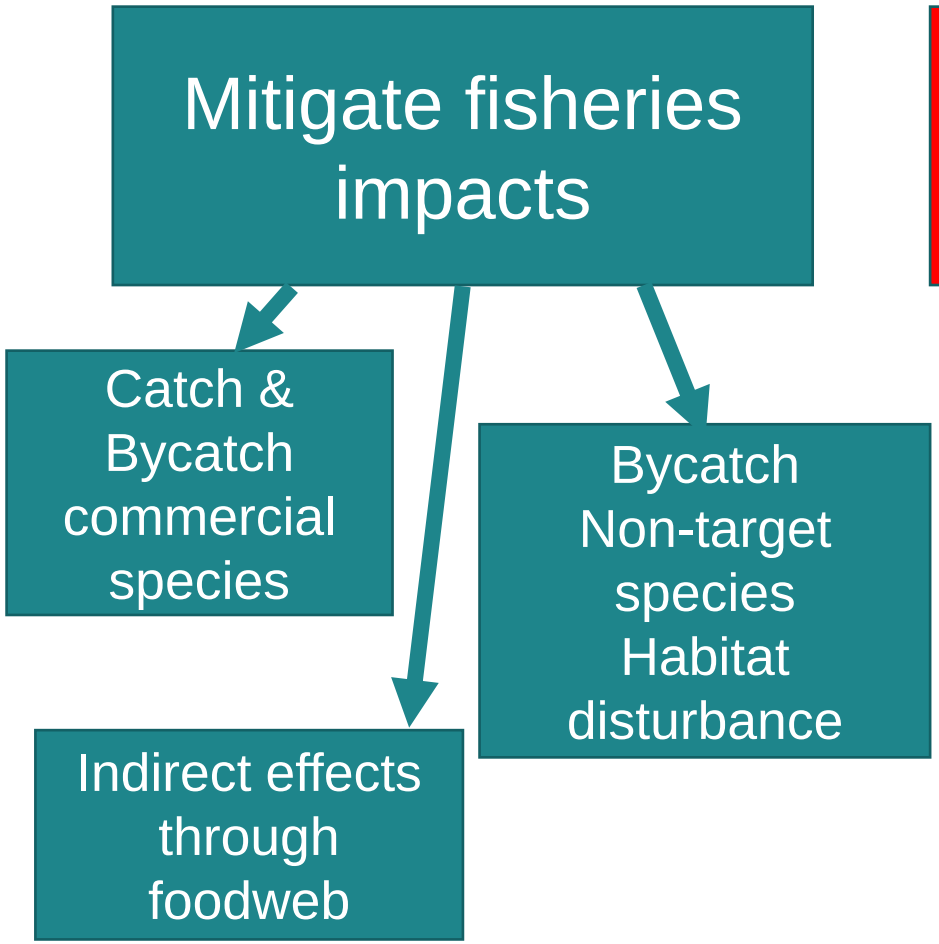
1 - Challenges to **mitigate fishing impacts**

2 - Challenges to **improve the advisory process and its knowledge base**

3 - Challenges to **improve the decision-making process**.

Methods

3 EAFM challenges



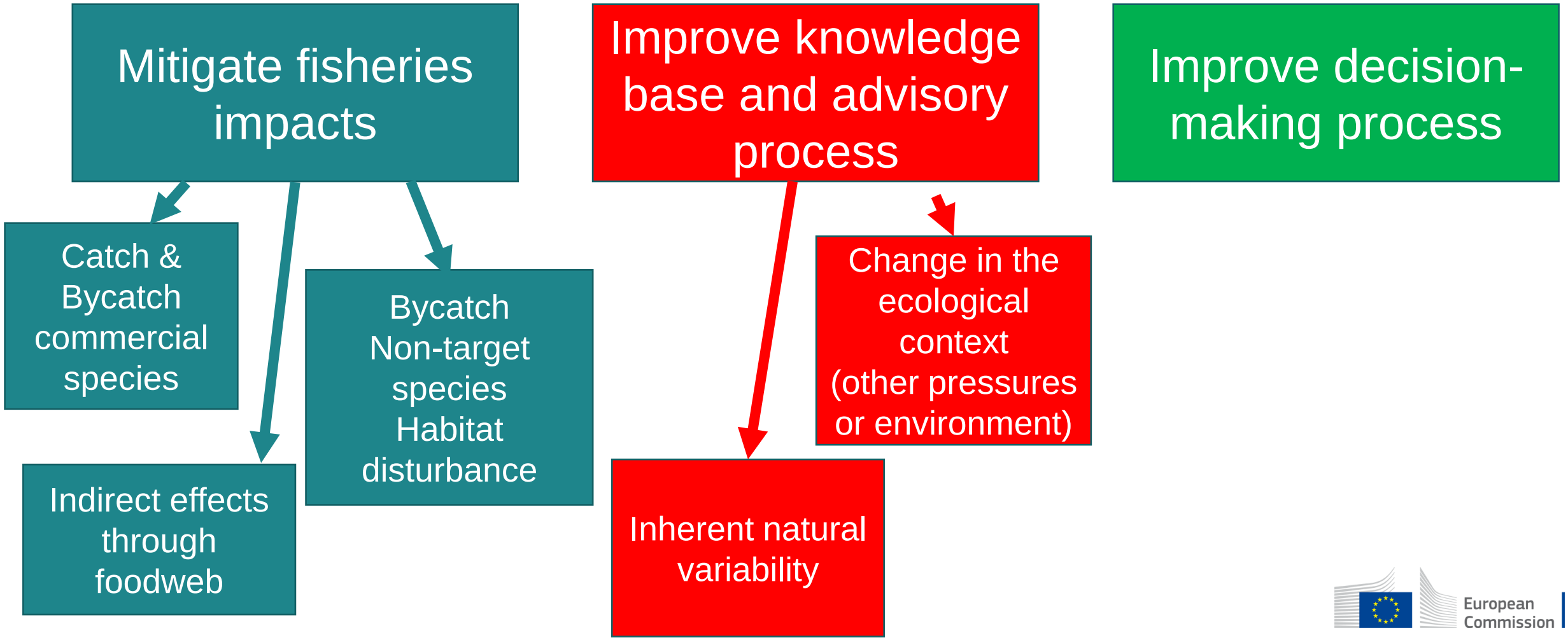
Improve knowledge base and advisory process

Improve decision-making process

European Commission

Methods

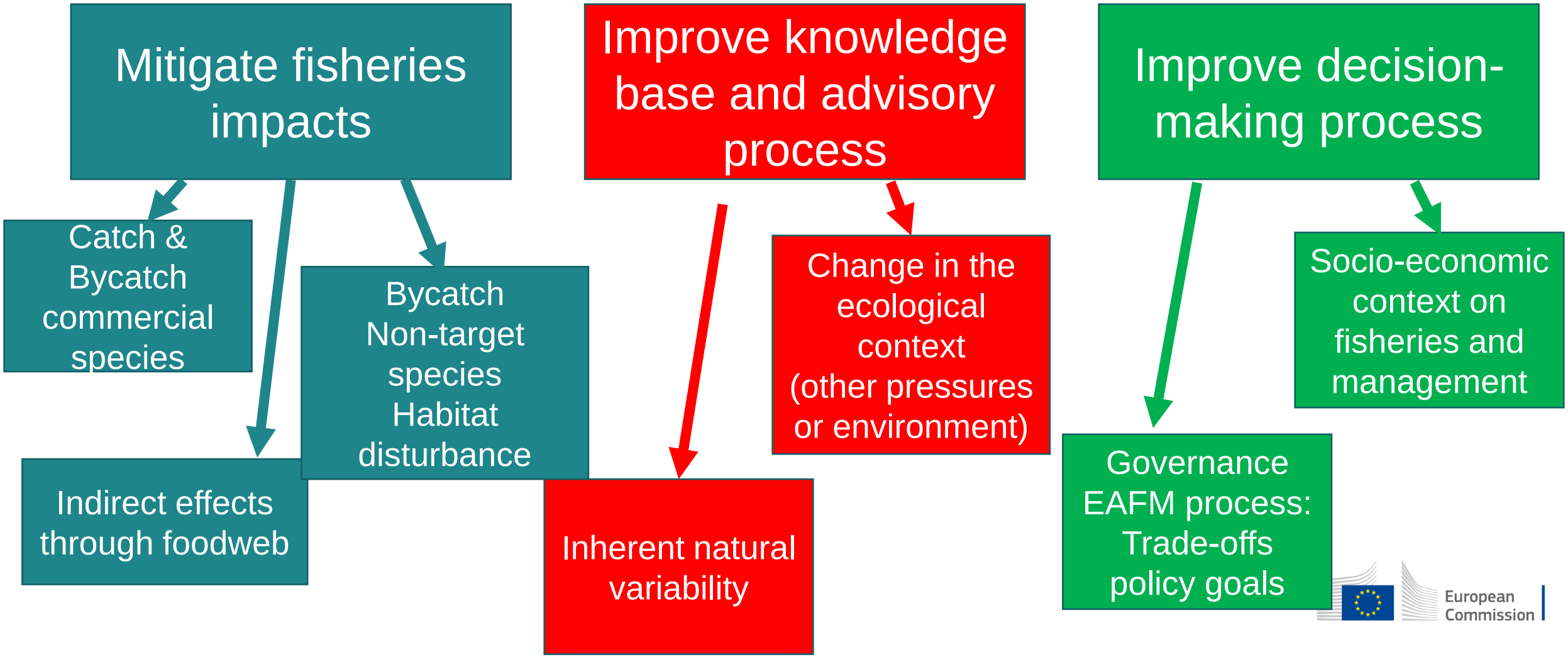
3 EAFM challenges



European Commission

Methods

3 EAFM challenges



European Commission

Methods

Fisheries and Management Measures

To assess the current state of implementation of an EAFM, **key EAFM components** were identified (i.e. the fisheries - both commercial and recreational- and the management measures and their legal settings).

Fisheries: “a group of vessel voyages targeting the same (assemblage of) species and/or stocks, using similar gear, during the same period of the year and within the same area” (ICES, 2003). These fisheries were expected to have sufficiently similar impact on the ecosystem, and could be used as the basic unit for the assessment.

Analysis of landings and species composition by the métiers identified **227 fisheries relevant for EAFM** (156 in European waters, excluding Mediterranean and Black Seas, and 71 in the Outermost Regions, and including recreational fisheries).

Methods

Fisheries and Management Measures

A **review of existing management measures identified three broad types of measures**:

1. **Input measures**, including Technical Conservation Measures (TCM) consisting of gear-based TCM (e.g. mesh size changes or sorting grids) and spatial/temporal TCM (e.g. no-take zones or real-time closures) and capacity and effort controls.

2. **Output measures**, including Total Allowable Catch (TAC), landing size and discard bans.

3. **Ecosystem restoration measures** including restocking schemes and stock enhancement (e.g. through habitat restoration or artificial reefs).

Methods

Policy instruments

The review revealed **other types of interventions,** in addition to management measures

These were identified as **policy instruments** which, in contrast to the management measures operating in the ecological system, **operate in the social system**.

Examples: **regulatory instruments**, such as co-management or self-management; **economic instruments** (e.g. tariffs, taxes and charges and, permit or quota trading and subsidies for alternative gears); **information and public engagement** measures such as eco-labelling that include EAFM objectives; and **interventions** to enhance monitoring and research and improve the knowledge base.

Methods Case studies

The role of the EAFM context was further explored through **12 in-depth case studies**.

- E**xplored various combinations of measures, EAFM challenges and fisheries**,
- Used to **provide insight into the advisory and decision-making process** used to identify and implement measures.
- Used to **identify potential best practices** and **highlighted the important roles of uncertainty and disagreement** within these processes, drawing attention to the role of science as well as other knowledge types.

Methods

Relational database

A **relational database** was created to **link the fisheries and measures/policy instruments with the EAFM challenges**.

It provided an **overview of the extent to which EAFM challenges are currently addressed**. This serves as a basis to formulate **recommendations** for the advancement of the implementation of EAFM

Case Study	Implemented management measure	Knowledge base and advice				Decision-Making process			
		Quality	Trust	Type	Fishers' knowledge	Evidence-based with clear objectives	Transparency	Stakeholder involvement	Regionalization
1.Technical conservation measures to protect Kattegat cod	Marine protected areas to promote the rebuilding of cod population								
2.Sole-directed pulse trawling in The Netherlands	Introduction of pulse trawling to reduce impact on sea bottom and CO2 emissions.								

Results

Overall conclusion: current fisheries management is dominated by conventional single-species advice on which the TAC/quota management is based.

- The first step toward more EAFM is through the implementation of TCMs to mitigate by-catch.

The three main categories of EAFM challenges:

- mitigating fisheries impact on the ecosystem
- The advisory process
- The decision-making process

Results

EAFM requires **explicit distinction between the management measures and the policy instruments** as the means to implement them.

Separating them is not only an improvement from a conceptual perspective but has many practical advantages as the two operate in distinct parts of the social-ecological system, require different expertise and scientific disciplines, and/or involve different governance actors.

This study provided a **first tentative typology of policy instruments**, considering their importance in EAFM.

Recommendations to advance an EAFM

- **Address the different EAFM challenges** and (further) **expand the policy objectives beyond the commercial species**,

- **Improve the knowledge base** and seek to **address obstacles within the existing advisory and decision-making processes**, (e.g. request more interdisciplinary/transdisciplinary research and advice)

- **Improve collection of information on fisheries management measures in place** (the study was hampered by a the lack of a comprehensive overview)

Improving EAFM implementation

- We are already implementing EAFM !
- Combination of output measures – input measures – ecosystem restoration measures
- Approaches are not perfect – check against criteria to establish best practices.
- Request more interdisciplinary/transdisciplinary research and advice

Conclusion

- Invest in data and information (‘relational database’, new technologies, citizen science? stakeholder data?)

- Involve stakeholders more directly in decision-making process

- Remember that it is an iterative process - continuum

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