



2014
INTERNATIONAL SYMPOSIUM ON
FISHERIES AND AQUATIC SCIENCE



**CONTRIBUTIONS OF NIMRD TO
ECOSYSTEM APPROACH OF FISHERIES MANAGEMENT IN ROMANIA**

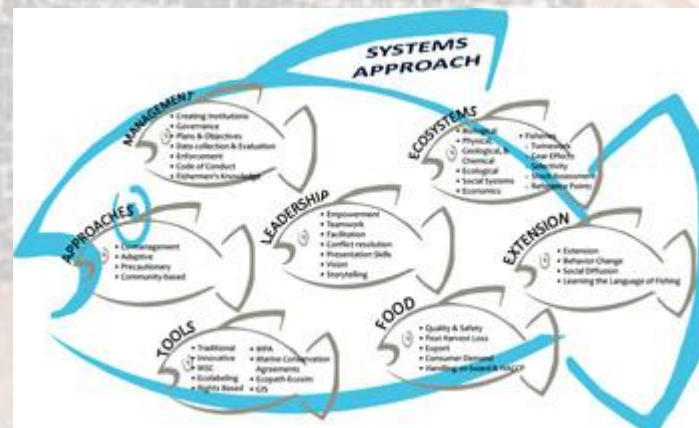
Tania ZAHARIA, Simion NICOLAEV, Gheorghe RADU

*NIRDEP - National Institute for Marine Research and Development "Grigore Antipa",
Constanta, Romania*

Objective

This paper aims at presenting the requirements of implementing the ecosystem approach to marine fisheries management (EAFM) in Romania, developed within projects NIMRD is partner in, together with the relevant scientific community of the European Union.

The new Common Fisheries Policy and Marine Strategy Framework Directive obligations raise the question how we can move towards an extremely useful ecosystem approach to fisheries. Although different ecosystem models have been developed in the past for different European seas, using the results of these models for fisheries management has remained limited. In Romania, these models are not yet implemented and, in Europe, they are implemented only in certain areas.



Methods

- The European projects focused the EAFM allowed for the first time to apply ecosystem approach to marine fisheries management concepts in the Romanian Black Sea area. The three projects were the following:



- - **FP7 Project:** Improving research in support to scientific advice to fisheries management in the Mediterranean and Black Seas (**CREAM**): 2011-2014 - completed;
- - **Romania - Greece bilateral project:** Investigations and applicative studies of ecosystem approach to fisheries in the Ionian Sea (Greece) and Black Sea (Romania) (**MEGALOS**): 2012-2014 - completed;
- - **FP7 Project:** Co-creating Ecosystem-based Fisheries Management Solutions (**MareFrame**): 2013-2017: ongoing.

Results and Discussion (1)

- While CREAM and MEGALOS are completed, MareFrame started at the beginning of 2014 and seeks to remove barriers that currently prevent a more widespread use of an Ecosystem-based Approach to Fisheries Management (EAFM) by developing: Novel data based on new tools and technologies; Ecosystem models and assessment methods based on indicators of Good Environmental Status (GES); A Decision Support Framework (DSF) adapted to the needs of decision makers, managers, operators, and other stakeholders that will support the implementation of the new Common Fisheries Policy (CFP), Marine Strategy Framework Directive (MSFD) and Habitats Directive (HD).
- The application of the ecosystem approach to fisheries in the vulnerable ecosystem of the Black Sea is a permanent objective of the scientific community. The outcomes of this project will underpin the future implementation of EAFM in Romanian Marine Fisheries.



Results and Discussion (cont.2)

FP7 project CREAM (2011-2014): 22 partners, coordinator IAMZ-CIHEAM (Spain)

The project was established an effective collaboration network among key role players in Mediterranean and Black Sea fisheries research and management. The participants in the project included national research institutes from Mediterranean and Black Sea countries with a long history and active participation in fisheries research and assessment, who provide advice to national, regional and international fisheries management organisms. The project were seek the active collaboration of regional and international fisheries management organisms as external participants in the project, in order to identify the gaps (in terms of data, knowledge, training, coordination) which hamper at present the full application of the Ecosystem Approach in the management of Mediterranean and Black Sea fisheries. The project had a strong training and capacity building component in order to help harmonize data collection and methodologies used in fisheries assessment and management in the Mediterranean and Black Sea. The project served to establish the guidelines for the application of the Ecosystem Approach to Fisheries in the Mediterranean and Black Sea, both in EU member states and third countries.



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Results and Discussion (cont.2)



Bilateral project MEGALOS (2012-2014): 2 partners, NIMRD (RO) and HCMR (GR)

The FINAL PROJECT REPORT reflects the basic scientific knowledge that is lacking in the process to advance EAF in both study regions (Romanian Black Sea and Ionian Sea). The outcome was a long list of issues and topics, evidencing the fact that basic gaps of knowledge from the regions can be found in all topics, from physical oceanography and ecological topics, to social and economic issues.

Gaps are also found in methodologies and tools needed to complement the toolbox for EAF. In this regard, the group discussed several methods that are already applied worldwide that could be adapted to be used in the Mediterranean and Black Seas region. The need for an improvement of scientific methods includes: (i) further standardization of stock assessment methods and harmonization of methods and data, (ii) the extension of indicators and definition of reference points, directions and targets (both limits and thresholds), including the development of indicators of stock status in data poor situations, (iii) the further development of modelling capabilities and scenarios including key human drivers to join global efforts in predicting the future of the oceans, and (iv) the creation or adaptation of tools to incorporate ecosystem research results into the management process.



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Results and Discussion (cont.3)

FP7 project MAREFRAME (2014-2017): 28 partners from 14 countries, coordinator Matís ohf. (Iceland), NIMRD – leader of WP8 (Dissemination&Training actions)

Aim: MareFrame seeks to remove barriers that currently prevent a more widespread use of an Ecosystem-based Approach to Fisheries Management (EAFM) by developing:

- Novel data based on new tools and technologies;
- Ecosystem models and assessment methods based on indicators of Good Environmental Status (GES);
- A Decision Support Framework (DSF) adapted to the needs of decision makers, managers, operators, and other stakeholders that will support the implementation of the new Common Fisheries Policy (CFP), Marine Strategy Framework Directive (MSFD) and Habitats Directive (HD).

Strategy: The MareFrame project focuses on:

- enhancing the capacity to provide integrated assessment
- advice and decision support for an ecosystem based approach to fisheries management feasibility for implementation

This will be done by combining three approaches:

- collaboration across scientific fields
- collaboration on fisheries representing different ecosystems
- co-creation approach which merges analytical and participatory processes in collaborative research with stakeholders

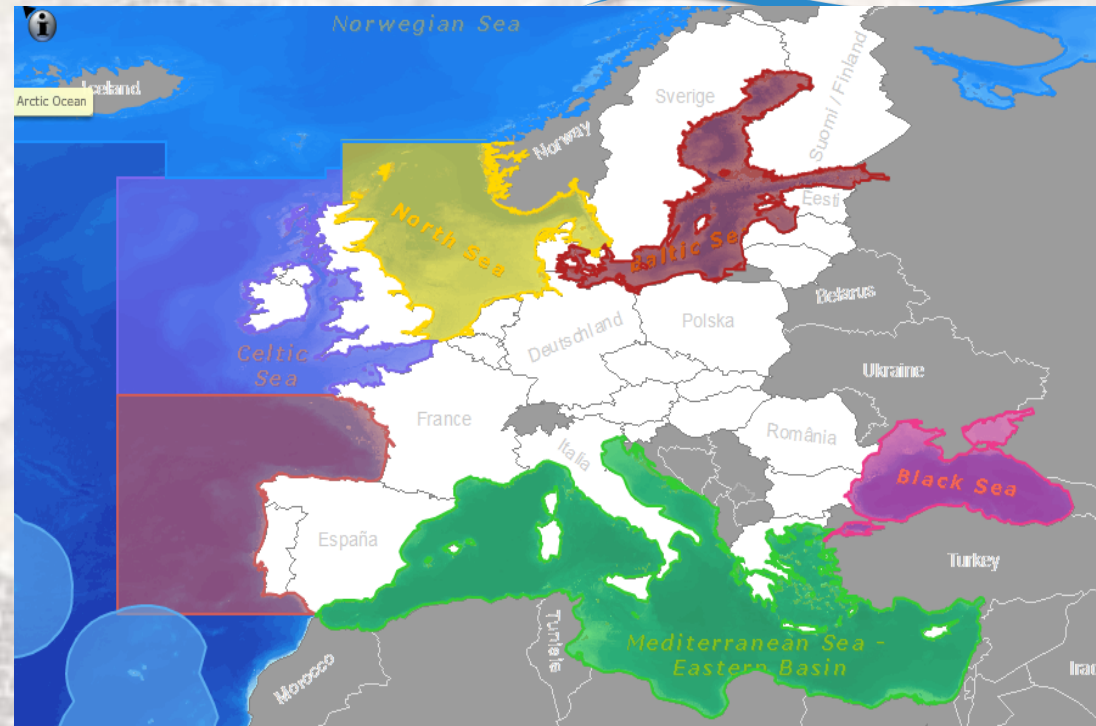
The logo for MareFrame, featuring the word "MareFrame" in a bold, blue, sans-serif font. A blue wavy line is positioned beneath the text, suggesting water or a fish's movement.

Results and Discussion (cont.4) MareFrame

FP7 project MAREFRAME (2014-2017):

7 CASE STUDIES:

- Baltic Sea
- North Sea
- Northern Waters
- Western Waters
- Mediterranean Sea
- Black Sea
- Chatham Rise, New Zealand



ECOSYSTEM MODELS!

GADGET

Ecopath with Ecosim (EWE)

FishSums

Multi-species prod. models

Size spectra

Atlantis

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Results and Discussion (cont.4) **MareFrame**

FP7 project MAREFRAME (2014-2017):

Beneficiaries:

MareFrame contains tangible benefits for groups of stakeholders who have primary interest in clear policy objectives. The benefits include:

- Efficient and effective decision-making and implementation
- Sustainable industry performance in terms of ecological, social and economic aspects



Results and Discussion (cont.4) **MareFrame**

FP7 project MAREFRAME (2014-2017):

BLACK SEA STUDY CASE:

Restoration of turbot fisheries to more productive levels, considering both the effect of fisheries and the ecosystem change occurred in the last 30 years, is the main objective of this case study. Both EWE and GADGET will be implemented in the western sector of the Black Sea (Romanian coasts).

The Black Sea Case Study was launched in Romania at the National Coordination Meeting/National Fisheries Data Collection Framework Programme 2014/2016 (09.05.2014). The meeting was attended by experts from the National Institute for Marine Research and Development “Grigore Antipa” Constanta (INCDM), the National Agency for Fisheries and Aquaculture, Romania (NAFA), as well as representatives of local fisherman associations/federations at the Romanian Black Sea coast. It was an excellent opportunity to introduce MareFrame to the Romanian stakeholders, both regulatory bodies (NAFA) and fishermen.

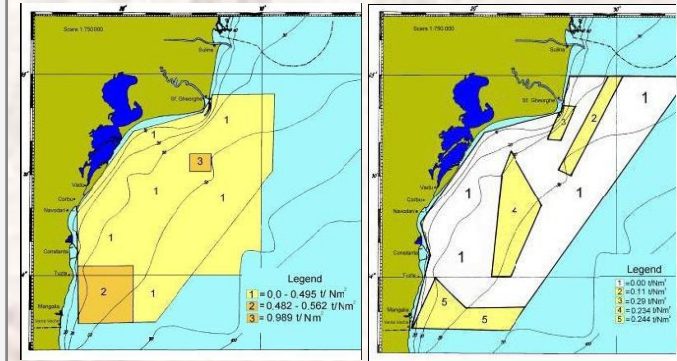
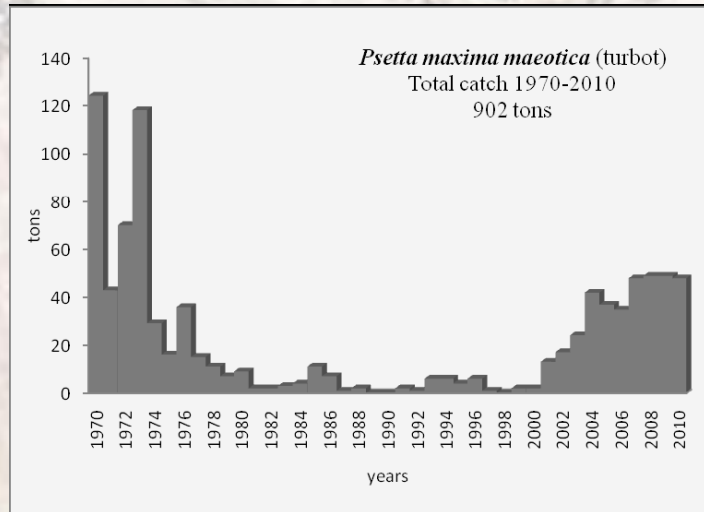
Turbot fishery is one of the crucial segments of Romanian fisheries, and all participants agreed that special attention needs to be paid for a sustainable exploitation of this valuable resource.



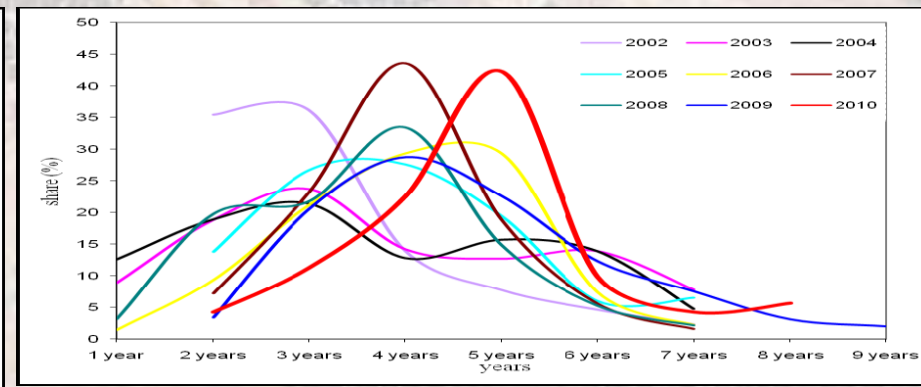
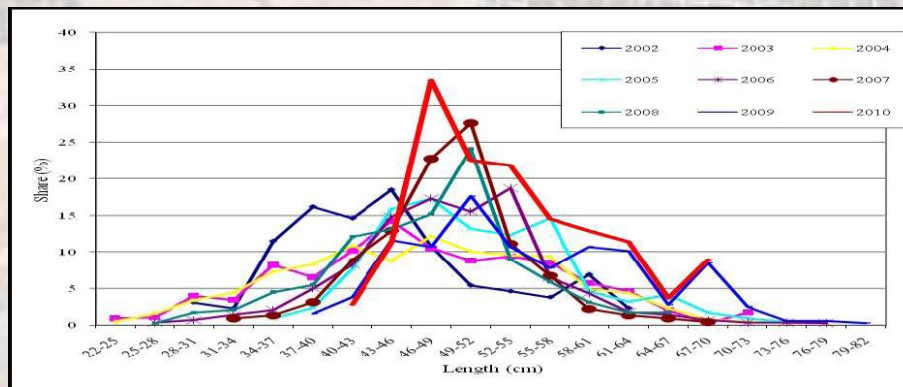
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BLACK SEA STUDY CASE:



Turbot catches during 2000-2010



The length frequency (%) of turbot catches

Age class structure (%) of turbot catches

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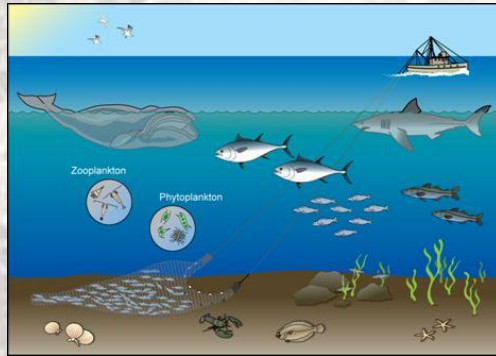
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Results and Discussion (cont.5) **MareFrame**

FP7 project MAREFRAME (2014-2017):

BLACK SEA STUDY CASE:

Deliverable 5.2 - Data available for modelling in case study areas (inventory)



Biological data:

- catch at national and regional level for the period 1951-2013;
- recruits, SSB and total biomass at regional level 1951-2012 (through analytical methods) for main species (sprat, turbot, whiting, horse mackerel and anchovy) from STECF/BS EWG for stock assessment;
- data on eggs and larvae at national level, through direct samples in the period 1995-2008 for sprat, whiting, anchovy and horse mackerel;
- recruits at national level, through direct samples in the period 1995-2008 for sprat, anchovy and horse mackerel;
- biomass of sprat, whiting, turbot, dogfish fishing agglomerations (swept area method) at national level in the period 1995-2013;
- growth parameters (L_{inf} , k , t_0) at national level (1995-2103);
- fat contents for adults only in few years 1995-1998 and 2006-2007);

Oceanography and bottom topography

Topography

Water Temperature data

Salinity data

Dissolved Oxygen

Nitrite data

Nitrate data

Ammonium data

Phosphate data

Phytoplankton data

Zooplankton data

Benthos data

Mammals

Diet and stomach contents data



NATIONAL INSTITUTE FOR RESEARCH AND DEVELOPMENT IN ENVIRONMENTAL PROTECTION

294 Splaiul Independenței, 6th district, 060031, Bucharest, Romania,
Tel: (004) 021 305 26 00/ 0372 298 600, Fax: (004) 021 318 20 01, E-mail: incdpm@incdpm.ro, Web: www.incdpm.ro
subunit:

NATIONAL INSTITUTE FOR MARINE RESEARCH AND DEVELOPMENT "GRIGORE ANTIPA" CONSTANTA

300 Mamaia Blvd. Constanta, Romania Tel: +40 241/543.288, Fax: + 40 241/831.274
E-mail: office@alpha.rmri.ro Web: www.rmri.ro



CONTACT:

***NIRDEP - National Institute for Marine Research and Development
NIMRD "Grigore Antipa" Constanta***

Romania, RO-900581 Constanta CT-03, 300 Mamaia Blvd.

e-mail: tzaharia@alpha.rmri.ro

web: <http://www.rmri.ro/>

Thank you for your attention!