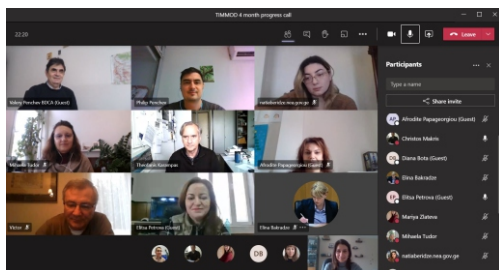


# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## TIMMOD NEWS



### The 2<sup>nd</sup> Progress report meeting

The second progress report meeting of the project implementation team of the project “Promoting technological innovation in Monitoring and modeling the environment for the Assessment of fish and non-fish resources” (TIMMOD) took place on January 13, 2021.

The meeting was organized on-line because of the restrictions caused by Covid-19. Among the topics discussed were two reports prepared and under preparation by the implementation team, namely, “Situational Analysis of monitoring of environmental parameters and assessment of fish stock & non-fishing resources at Black Sea, and the associated technological and methodological issues” and “Study on cross-border coordination mechanisms, organizational and human resources available in the area and relevance for the planned technological update.

**Identification of priority issues, established in accordance with MSFD (Marine Strategy Framework Directive) and DCF (Data Collection Framework)”.**

For the first report the final draft was approved while for the second report the pre-final draft was agreed and Project Partners agreed to provide their final inputs to the report by 25 January 2021. Other topics discussed were the preparation of the progress report for the second reporting period 15 October, 2020 - 14 January, 2021, the activities for the next 4 months of project implementation, especially taking into account the pandemic situation in the countries involved in the project - Bulgaria, Georgia, Greece, Moldova and Romania.

The meeting was attended by all project partners.



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## 1<sup>st</sup> Thematic Transboundary Meeting

The Thematic Transboundary Meetings (TTM) are organized within the TIMMOD Project Network in order to raise awareness of researchers, surveyors and decision makers, and improve regional cooperation of their institutions on joint application of innovative systems in marine environment monitoring services, and cross-border data exchange - providing this way an essential output of the TIMMOD project, contributing to BSB Program result 2.1 "Improved availability of cross-border compatible environmental monitoring data and information".

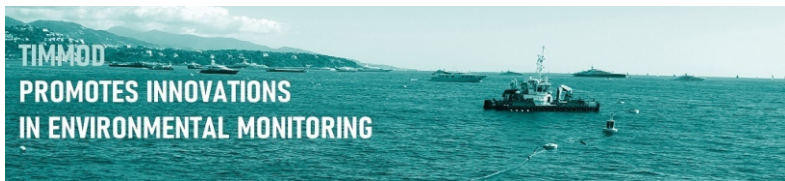
The 1<sup>st</sup> TTM was hosted by REC - Moldova. Due to COVID-19 situation it was organized as an "online/hybrid" meeting - online meeting hosted in MS TEAMS, and face-to-face meeting in the conference room. The 1<sup>st</sup> TTM was attended by more than 60 participants from 6 partner countries. The **first session** of the 1<sup>st</sup> TTM was dedicated to discussions on the Action Plan for the 2<sup>nd</sup> reporting period. The participants discussed in details the activities to be implemented until mid-January 2021.

The **second session** of TTM was dedicated to the deliverable DT.1.1.1.1. "**Situational Analysis of monitoring of environmental parameters and assessment of fish stock & non-fishing resources at Black Sea, and the associated technological and methodological issues**". The report consists of 5 chapters and more information is available below in this E-Newsletter.

The **session 3** was the seminar "**Innovations in Marine Environmental Research**". 5 presentations from 5 countries took place in different fields - methods and tools for estimation of the fish stock, water quality monitoring, blue economy, etc.

Seminar was chaired by **Valeri Penchev (BDCA)**.

**Dr. Elitsa Petrova (IFR)** presented 4 research projects where the application of innovative methods and technologies, environmental modeling, use of innovative equipment were tested and used. She mentioned also the activities of the IFR and possible links with the TIMMOD project.



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## 1<sup>st</sup> Thematic Transboundary Meeting

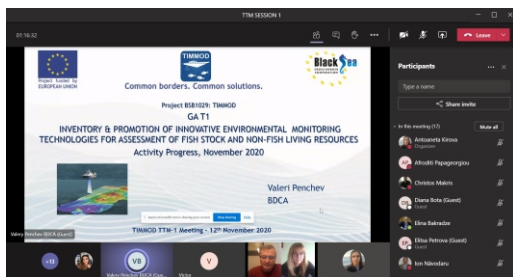
Next was the presentation from **Valeri Penchev** on **USV Marine Drones** with possible application for marine environmental monitoring and fish resources assessment. He presented in details the types of the drones and their field of application (for hydrographic surveys, for oceanographic surveys, for environmental measurements, patrol, for hull cleaning, waste collection) as well as monitoring equipment on the drones.

**Christos Makris (AUTH)** presented **Advanced 3-D Numerical Simulation of hydrodynamic circulation flows in coastal and open-seas environments**. He focused on the activities to be implemented under the work package 2 of the TIMMOD project and namely **“Assessment and Recommendation on Advanced Hydro-environmental Numerical Tools for Data Handling, Real-time Control and Forecasting of Marine Conditions in the Black Sea”**.

Next presentation was from **Ion Navodaru (DDNI)** on **Fisheries and fish stock estimation in Danube Delta, Romania**. He focused on types of fisheries, major environmental changes, methods of fish stock estimation and management of the fisheries in Danube Delta.

**Valeriu Cazac, Moldova** presented the water monitoring system of water quality of rivers **Prut and Dniester** and **Dumitru Bulat** from Institute of Zoology of Academy of Science of Moldova presented the methods of fish stock estimation in those rivers.

**Lyudmil Ikononov** from Bulgaria presented **“Eco-system Based Integrated Coastal Zone Management for Blue Economy Development in Black Sea”**. The Blue Growth Strategy is based on three main pillars: Economic sectors with highest potential for development, Advanced knowledge and reliable legal regulations, Focused regional strategies for the European seas. He underlined that a number of question related to the “geography” of the Blue Growth Strategies implementation still have not been answered: where will these strategies be implemented?, where will the “blue growth” take place?, deep in the oceans?, in the open seas?, in the coastal waters? or, maybe, on the coast, itself? He continued with detailed presentation of the possible strategy for the Bulgarian Black Sea Basin.



All presentations were followed by discussions, questions and answers.



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



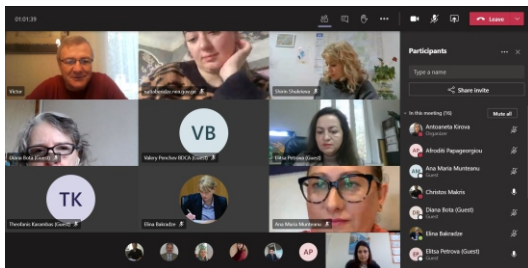
# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## 1<sup>st</sup> Steering Committee meeting

The 1<sup>st</sup> Steering Committee meeting (SCOM) was held on-line on 13 November 2020.

The meeting was chaired by Dr. Elitsa Petrova (IFR).



The main topics discussed at the SCOM were approval of all TIMMOD Deliverables elaborated so far, discussion and approval of Notification No.1 to the JTS, procedure for appointment of Representatives of Stakeholder Groups (RSHG) authorized to attend TIMMOD meetings and events and other business. The meeting was attended also by Ana-Maria Munteanu, project manager from JTS.

Ana-Maria presented the overview on the Progress report #1 (4 months). She mentioned that report was presented in time and after answering to the clarifications requested by JTS, the report was approved. She also informed on the procedures for the next progress report and preparation of the interim report.



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



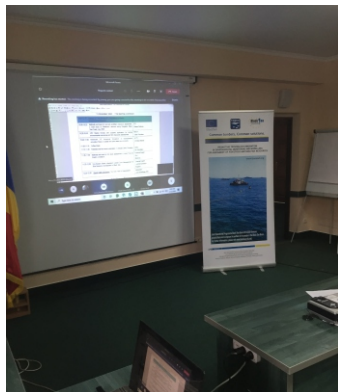
# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## 2<sup>nd</sup> Dissemination event

Regional Environmental Centre Moldova / REC Moldova/, the partner in the project **“Promoting Technology Innovation in Environmental Monitoring and Modelling for Assessment of Fish Stock and Non-fish Resources” (TIMMOD)** implemented within the Joint Operational Program “Black Sea Basin 2014-2020”, hosted the project dissemination event on 13 November 2020.

The event was attended by 15 participants representing different stakeholders.



The main goals, activities and expected results of the TIMMOD project were presented by REC Moldova Project Manager Victor Cotruta. The report **“Situational Analysis of monitoring of environmental parameters and assessment of fish stock & non-fishing resources at Black Sea, and the associated technological and methodological issues”** developed under the Work Package T1 **“Inventory & Promotion of Innovative Environmental Monitoring Technologies for Assessment of Fish Stock and Non-Fish Living Resources”** was presented by Project Manager and Technical Experts of the project.

The leaflet **“Technology Innovation in Environmental Monitoring and Modelling for Assessment of Fish Stock and Non-Fish Resources”** was distributed to the participants.



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## Short info on Deliverable D.T.1.1.1

The report “**Situational analysis of the Monitoring and Assessment of Black Sea Fish and Non-fish Living Resources and recommendations to increase the efficiency of use of available methods and tools**” was developed as a collective effort of 6 partners from the Black Sea region, from the following countries: Bulgaria, Georgia, Moldova, Romania and Greece, focusing primarily on the characteristics of the state of monitoring and assessment of living resources of Black Sea in the above countries. For the completeness of the report, the most general characteristics for the other Black Sea countries - Turkey, Russia and Ukraine, are presented, as obtained from published data and analyzes on this topic.

This report presents a situational analysis of the monitoring and assessment of Black Sea fish and non-fish living resources, aiming to provide recommendations to increase the efficiency of the use of available methods and tools. The report was developed as Deliverable DT1.1.1, within Group of Activities T1, activity T1.1, in the period May-November 2020.

Consolidation of the individual reports provided by the project partners, as well as the editing and formatting of the final text of the report was performed by the team Leader of the Group Activity T1, BDCA, in coordination with the Lead Beneficiary IFR.

The analyses, conclusions and recommendations in this report are intended primarily for researchers, surveyors, decision makers, and all relevant stakeholders, but at the same time this report provides important information that can be used by a wider range of public institutions, industry companies and the general public.



Image source: Illustration on the “Good Environmental Status” approach



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## Short info on Deliverable D.T.1.1.1

**Section 1** of the report presents the main regulatory framework defining the activities for monitoring and evaluation of the Black Sea resources, including EU and international policies and regulations, as well as regional conventions. The main focus is on the current state of the Black Sea Ecosystem, Fish and Shellfish Resources, formulating the basic requirements for the scientific sector and marine surveyors to perform high-level marine research and improve coordination between countries.

**Sections 2 and 3** present the individual reports of the project partners, providing details of existing organizational and human resources, as well as an inventory of equipment, sensors, vessels; data platforms, numerical modelling and GIS tools. Information on available research vessels, measuring instruments and ICT/numerical tools has been collected and analyzed in order to determine the potential of the different countries in the Black Sea region, as well as to define their roles for further improvement of joint monitoring and data sharing.



Image source: Electronic recording and reporting system (ERS)

**Section 4** focuses on the challenges of transboundary cooperation, and emphasizes on the need for regional cooperation, outlining the main challenges towards better planning of joint monitoring activities.

In conclusion, **section 5** summarizes the results of the activities carried out by the international team of TIMMOD, presenting the main conclusions and recommendations to increase the efficiency of the use of available methods and tools for environmental monitoring and assessment of fish and non-fish living resources of the Black Sea.



Project funded by  
EUROPEAN UNION

This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



CROSS BORDER  
COOPERATION

# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## Short info on Deliverable D.T.1.2.1

The report “Inventory on Technology Innovations in Marine Environmental Monitoring and Assessment of Fish Stock and non-Fishing Recourses” was developed as a collective effort of the 6 TIMMOD partners from the Black Sea region - Bulgaria, Georgia, Moldova, Romania, and Greece, under the coordination of the Group Activity T1 Leader, BDCA, in cooperation with the Lead Beneficiary IFR.

This report presents an inventory on technology innovations in marine environmental monitoring and assessment of fish stock and non-fishing recourses, aiming to provide recommendations to possible application of efficient modern monitoring technologies in Black Sea area in order to improve cooperation and data sharing between Black Sea countries.

Assessment of fish stock is the process of collecting, analyzing, and reporting demographic information to determine changes in the abundance of fishery stocks in response to fishing and, to the extent possible, predict future trends of stock abundance.

Similarly, assessment of non-fish living resources (invertebrates, shellfish) requires estimation of the abundance, as well as analysis on all factors influencing the ecosystems. Managers use stock assessments as a basis to evaluate and specify the present and probable future condition of fishery and use of non-fish (shellfish) resources.

The analyses, conclusions and recommendations in this report are intended primarily for researchers, surveyors, decision makers, and relevant stakeholders concerned with fisheries and environmental protection of Black Sea, but at the same time this report provides valuable information that can be used by a wider range of public institutions, industry companies and the general public.

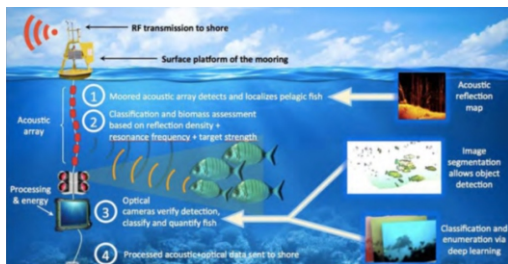


Image source: Principle of operation of the SYMBIOSIS autonomous opto-acoustic system, <http://symbiosis.networks.imdea.org>



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.





# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## Short info on Deliverable D.T.1.2.1

Inventory and analyses in this report are presented in 3 main chapters:

**Chapter 1** of the report presents a review on existing innovative technologies, already proven in operational conditions. This review is based on collecting comprehensive information on existing technological breakthrough solutions and relevant technical and operational approaches. The mapping of existing technology innovations covers all geographical areas (all European seas, and the world ocean), as well as any innovative solutions relevant to monitoring of parameters concerning fish and shellfish abundance. This analysis distinguishes between technological readiness levels (TRL 4 to 9) of innovations, separating technologies in research/testing/verification phase, and other used in operating practices with already proven efficiency. The latest are analysed in order to suggest appropriate modern technologies applicable in Black Sea.

**Chapter 2** of the report is focused on review and analyses on good practices. The mapping of good practices is primarily focused (but not limited to) the Black Sea region. However, the focus is put on such practices that are suitable and can be replicated for the typical conditions of Black Sea.

These good practices will be presented at the Thematic Transboundary Meeting 2 (in Thessaloniki Greece in 2021).

It is worth to note however, that further detailed analysis (including elements of environmental impact assessment and cost-benefit analysis) as well as selection and promotion of selected innovative technologies and best practices, will be carried out within TIMMOD Activity 1.3 and will be reported in deliverable DT1.3.1 **“Recommendations on adoption of appropriate technology innovation and best practices for marine environmental monitoring at Black Sea”**.

In addition, the recommended technology solutions will be discussed by the project consortium and stakeholders at 5 national workshops, best selected of them will be published in the internet site of the project, will be showcased, and therefore promoted for further replication in the Black Sea basin.

**Chapter 3** presents future and emerging technologies (TRL 1 to 3, i.e., which are still in concept phase, but where serious potential for further application is expected). This special review gives a prospective view to next decades, as well as a long-term perspective for the suggested technological upgrade of fish and non-fish monitoring services, which is a basic requirement to provide sustainability of future regional cooperation in the Black Sea area.

The final section of the report presents conclusions and recommendations, summarizing findings of the inventory and analysis carried out by the international team of TIMMOD.

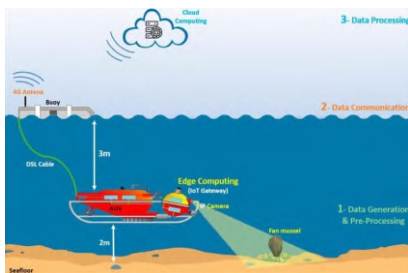


Image source: AUV-IoT Platform, cloud-based custom models for detecting Mediterranean fan Mussel (Salhaoui et al. 2020)



This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



# The second newsletter of the TIMMOD project

Common borders. Common solutions.

## Short info on Deliverable D.T.4.1.1

The project implementation team is in process of developing the report “Study on transboundary coordination mechanisms, available organisational and human resources in the area, and their relevance to the planned technological upgrade. Identifying priority issues, set in accordance to the MSFD and DCF”. The report is developed as a collective effort of the 6 TIMMOD partners from the Black Sea region, Bulgaria, Georgia, Moldova, Romania and Greece, under the coordination of the Group Activity Leader, NEA, in cooperation with the Lead Beneficiary IFR and PP BDCA. Study will present transboundary coordination mechanisms, available organisational and human resources in the area, and their relevance to the planned technological upgrade.

More information will be provided in the E-Newsletter#3.



Image source: The processes of fishery monitoring, stock assessment, consultations, and advice of STECF to policy and regulation for EC and Parliament

## The main activities for the next project period:

- Finalisation of the report “Study on transboundary coordination mechanisms, available organisational and human resources in the area, and their relevance to the planned technological upgrade. Identifying priority issues, set in accordance to the MSFD and DCF”;
- Continuation of activities within the Group of Activities 2: **Assessment and Recommendation on Advanced Hydro-Environmental Numerical Tools for Data Handling, Real-Time Control and Forecasting of Marine Conditions in the Black Sea**;
- Preparation activities: Development of Pilot Test Demonstration program. Selection and Delivery of sensors and equipment, software;
- Updating Stakeholders database;
- Organization of the 2<sup>nd</sup> Thematic Transboundary Meeting;
- Preparation of the interim narrative and financial reports.

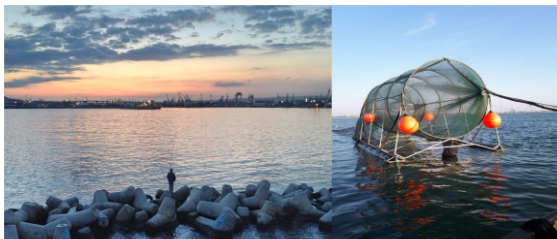


This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



# The second newsletter of the TIMMOD project

Common borders. Common solutions.



[TIMMOD-Project](#)



[www.timmod.org](http://www.timmod.org)



Elitsa Petrova-Pavlova  
Institute of Fish Resources  
(Lead Beneficiary)  
BULGARIA  
[e.petrova@ifrvarna.com](mailto:e.petrova@ifrvarna.com)

Valeri Penchev  
Black Sea - Danube  
Association for Research  
and Development  
BULGARIA  
[timmod@bdcabg.org](mailto:timmod@bdcabg.org)

Christos Makris  
Aristotle University of  
Thessaloniki  
GREECE  
[cmakris@civil.auth.gr](mailto:cmakris@civil.auth.gr)

Natia Beridze  
LEPL National  
Environmental Agency  
GEORGIA  
[natia.beridze@nea.gov.ge](mailto:natia.beridze@nea.gov.ge)

Victor Cotruta  
Regional Environmental  
Centre - Moldova  
MOLDOVA  
[victor@rec.md](mailto:victor@rec.md)

Mihaela Tudor  
Danube Delta National  
Institute  
ROMANIA  
[mihaela.tudor@ddni.ro](mailto:mihaela.tudor@ddni.ro)

Joint Operational Programme Black Sea Basin 2014-2020

Regional Environmental Centre Moldova

February 2021

Joint Operational Programme Black Sea Basin 2014-2020 is co-financed by the European Union through the European Neighbourhood Instrument and by the participating countries: Armenia, Bulgaria, Georgia, Greece, Republic of Moldova, Romania, Turkey and Ukraine.

This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Regional Environmental Centre Moldova and can in no way be taken to reflect the views of the European Union.



Project funded by  
EUROPEAN UNION

