

## EXECUTIVE SUMMARY

This report presents a *Draft Innovation Strategy to improve joint monitoring, data sharing and cross-border information exchange systems in compliance with MSFD and DCF*. The Draft Innovation Strategy is elaborated in accordance with the work plan of project TIMMOD BSB-1029, within the Black Sea Basin Program 2014-2020. The report has been developed within Group Activity T4, activity T4.2, in the period November 2020 - November 2021, and provides the planned Deliverable DT.4.2.1.

According to the 3<sup>rd</sup> specific objectives of TIMMOD, this *Draft Innovation Strategy* has been “*designed to bring together EU’s, national and regional regulations and permits, combined with new monitoring and information technology, expanded transparency, and innovative enforcement*”.

**SECTION 1** of this document report presents the Strategy approach, defining its Vision and Mission, Goals and Objectives. They are formulated on the basis of an overview of findings and recommendations derived from the previous studies and analyses performed within the TIMMOD project activities, as summarized in this section of the report.

The **Vision** that defines the current Strategy is to make Black Sea cleaner, to preserve and increase fish and shellfish abundance, and provide sustainable use of biodiversity by use of advanced monitoring and modelling tools. It is shortly expressed in the slogan of TIMMOD project: *Innovation we need, for the Black Sea we want*.

TIMMOD partners share the common understanding that the “*Technological Upgrade is the key to improve joint environmental monitoring*”. Therefore, the **Mission** of the TIMMOD Innovative Strategy is to contribute to accomplish a technological upgrade in environmental monitoring and fish (and non-fish) stock assessment at Black Sea basin scale, by implementing TIMMOD outcomes and achievements in the 5 countries of the TIMMOD Consortium, and by promoting TIMMOD initiative in the rest of the Black Sea countries”.

**Main Goals** of the Innovation Strategy are:

- 1) Launching the process of technological upgrade in monitoring and modelling activities of the research organizations in the TIMMOD consortium in 5 countries of the Black Sea region, and upscaling of the TIMMOD innovation initiative in the other Black Sea states, as follows:
  - In accordance with a Strategy roadmap, defining sub-goals and major steps needed to reach it;
  - By realization of a Short-term Implementation plan on adoption and implementation of up-to-date cost effective and reliable instrumentation and equipment (sensors, measurement devices, vessels, platforms), and relevant ICT tools (numerical models, GIS tools, novel software, open-source codes) for data-sharing and open public web access;
  - In line with the key points of a Long-term perspective for providing sustainability of the technology innovation in the fish and shellfish research and monitoring institutions.
- 2) Developing the basic structure of an Improved mechanism for regional coordination & management, providing support from relevant authorities, and involving a mechanism of continuous advice on methodological issues related to a common understanding of the technical and scientific implications.
- 3) Laying the foundations of a Framework for cooperation in education, R&D and innovation, to improve data sharing and cross-border information exchange systems.
- 4) Creating an Organisational structure for involvement of key stakeholders in co-implementation of the Innovation Strategy - this way providing sustainability of the process of technological upgrade.

Specific **Objectives and Milestones** with a timeline for achieving the above goals are specified in Section 5, Strategy Roadmap and Implementation Plan.

It is common understanding of TIMMOD group, that this Strategy can only be implemented in close cooperation and interaction with stakeholders. The role of co-implementation in this case is crucial, as presented in section 1.4. The relevant national authorities that need to be involved and that can assist in providing the appropriate resources for the implementation of the Strategy, Research centers that will also play a key role, as well as the organizations authorized to carry out monitoring research on marine water quality and the assessment of fish (and non-fish) resources, are mentioned, referring to the detailed analysis of key stakeholders presented in previous TIMMOD reports (DT1.2.1, DT4.1.1).

The TIMMOD approach to the common adoption of innovative equipment and ICT tools for data-sharing and open public web access is in focus of **SECTION 2** of the report. It builds upon the findings, conclusions and recommendations of previous studies of TIMMOD:

- the analysis of the current situation of the monitoring and assessment of Black Sea fish and non-fish living resources; the Inventory on Technology Innovations in marine environmental monitoring; the Recommendations for innovative solutions and best practices (GA T1 - DT1.1.1, DT1.2.1 and DT1.3.1)
- studies on data handling and numerical modeling, and development of a set of various ICT tools applicable to fishery research (GA T2 - DT2.1.1),
- first results of pilot surveys at sea, by testing and demonstrations of innovative monitoring equipment and software (GA T3 - DT3.1.1).
- Studies, analyses and preparatory works for the development of the Innovation Strategy (GA T4 - DT4.1.1).

It is a common understanding within TIMMOD network that innovation enforcement in Black Sea cannot be achieved without providing coherence with Data Collection Framework (DCF), and establishment of relevant links to EU data platforms: Copernicus, EMODnet, and other. This is emphasized in section 2.3 of the report, also showing the role of research organizations within TIMMOD to facilitate this process. The importance of organisation of a successful campaign to clarify the Innovation Strategy, and the need of providing public support of NGOs, fisheries associations, and people from coastal municipalities is also emphasized (section 2.4).

**SECTION 3** provides references to legal, policy and management frameworks in different Black Sea states. The information presented is a summary of previous studies in this area presented in deliverable report DT1.1.1. More attention is paid to the countries represented in the consortium of the TIMMOD project: Bulgaria, Romania, Georgia, Greece and Moldova. Information on these countries was provided by the project partners. At the same time, short information is presented also for the other Black Sea countries: Turkey, Ukraine and Russia. For this purpose, information from publications in various media was used.

Based on the national analyses, some recommendations for compliance of national regulatory and management frameworks with MSFD, Data Collection Framework, EU policy for Blue Economy, BS Common Maritime Agenda, are drafted in section 3.9.

The way to improve regional coordination and management is discussed in **SECTION 4** of the present report. The transboundary character of the living resources of the Black Sea imposes the necessity for coordinated efforts at regional level for their exploitation and protection. Considering that the majority of fish species with commercial value are shared or migratory species, the problem of transboundary cooperation on common approaches and in sharing data about fish and non-fish resources becomes of primary importance.

An improved structure of coordination is suggested in section 4.1, referring to the establishment of an organisational structure (as further presented in Section 5). A common mechanism of continuous advice on methodological issues is proposed as a part of this approach (section 4.2). A suggestion for establishing a Framework for cooperation in education, research & innovation, and data sharing is proposed in section 4.3

**SECTION 5** presents the elaborated Strategy Roadmap, and the Short-term Implementation plan, being one of the main objectives of the Innovation Strategy. A Roadmap, defining sub-goals, major steps and milestones needed to reach this objective is presented in section 5.1. A Short-term Implementation Plan on adoption of up-to-date cost effective and reliable instrumentation and equipment (sensors, measurement devices, vessels, platforms) is drafted in section 5.2. The plan pays attention also on adoption of relevant ICT tools (numerical models, GIS tools, free software and programming codes) for data-sharing and open public web access, emphasizing on the importance of data-sharing for improving joint environmental monitoring. The key steps in the Long-term perspective of the Strategy are presented in section 5.3.

Key performance indicators for the successful implementation of the Innovation Strategy, and the relevant target numbers, are discussed in section 5.4.

**SECTION 6** of this report presents the vision for organizational and resource provision of the Strategy. The practical ensuring of the implementation of the Strategy covers:

- Creating an appropriate organizational structure.
- Resource (including financial) provision.

The need of creation of an organizational structure for the management of the Strategy, which will ensure the effective implementation of the set goals, is discussed in section 6.1. Detailed information has been presented in previous TIMMOD reports (DT1.1.1, DT4.1.1), on available organizational resources, and the relevant scientific and research potential in the different Black Sea countries involved in research, monitoring and assessment of fishery (and non-fishery) resources. However, for the purpose of the present Innovative Strategy, it is suggested to establish an Innovative Enforcement Committee (IEC), with participation of representatives of TIMMOD partner organizations, and invited experts from other BS countries, as well as specialised Working (Task) Groups.

Together with the organizational and structural provision, the financing has a generalizing, concluding character of an insurance resource. If sufficient financial resources are not provided, there is a real risk of failure of the adopted Strategy. This matter is discussed in section 6.2, where various national and regional funding sources are analysed.

In conclusion, the findings and results of project Activity 4.2 carried out by the international team of TIMMOD are summarized and presented in Section “Conclusions and Recommendations” of this report. The next steps and actions to be taken for the adoption and implementation of this Strategy are highlighted, including its validation at the national validation workshops in 5 countries, as well as at the International validation workshop at the end of the project.

The analyses, conclusions and recommendations in this report are primarily intended to draw efforts of TIMMOD partners toward involvement of key national stakeholders in the process of drafting this document, in the discussions and critical analysis during National Validation Workshops, and most important - in the implementation of this Strategy in short-term and long-term prospective. All together the conclusions of this report can be widely used by researchers, surveyors, decision makers, as well as by a wider range of public institutions, industry companies and the general public.