



Grant Agreement No: MARE/2020/08 - SI2.839444

Development of the regional database for the Mediterranean and Black Seas

MARE/2020/08 - SI2.839444

DEVELOPMENT OF THE REGIONAL DATABASE FOR THE MEDITERRANEAN & BLACK SEAS (Med&BS RDBFIS)

This project has financed under the European Maritime and Fisheries Fund (EMFF)

EASME/EMFF/2020/OP/0021

Specific Contract 2021/3.1.2/03/SC04

**HOSTING, MAINTENANCE AND FURTHER DEVELOPMENT OF THE REGIONAL DATABASE FOR THE
MEDITERRANEAN AND BLACK SEAS**



Regional Coordination Group
Mediterranean and Black Sea

RCG Med&BS technical meeting
29/08-01/09 2023
Madrid



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Med&BS RDBFIS: Overview

The Regional Grant MARE/2020/08 **Med&BS RDBFIS** was launched by DG MARE on **1st January 2021** materialized discussions of over 10 years at regional level;

The project was **completed on February 2023** (having received a 2 month extension from the EC), the final report was accepted by DGMARE;

The action aimed at addressing the legal requirement of the DCF Regulation (EU) 2017/1004 on setting up regional databases purposing to facilitate Member States' response to data calls and reduce the burden of multiple data submissions (for data calls) under different formats;



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Med&BS RDBFIS: overview

On the creation of RDBFIS, the consortium worked closely with all involved parties



DG MARE

JRC



General Fisheries
Commission for
the Mediterranean



Med&BS MS
Med&BS RDB SC
STECF
Survey CG



Regional Coordination Group
Mediterranean and Black Sea



Regional Coordination Group
Large Pelagics



RDBES



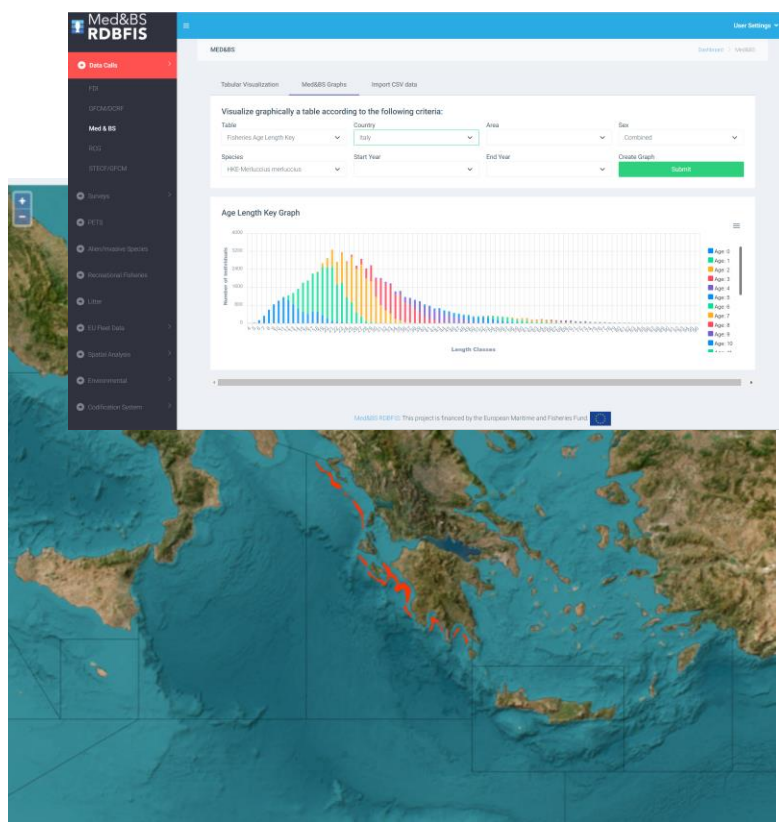
FISHN'CO



RCG's Secretariat
SECWEB

Med&BS RDBFIS: Overview

RDBFIS: a web-based integrated fisheries information system for the Med&BS



main features and advantages:

- Centralize RDB for DCF data;
- A power full tool for Med&BS RCG, Med&BS MS, end users;
- A security subsystem ensures data access and protection;
- Support common quality data checks, processing, reporting;
- Surveys are included;
- Spatial information has been integrated

Med&BS RDBFIS: Overview

Components



- RDB (incl. RDBES shema)
- GUI through the end user interact with the database(s) and the application modules
- Quality checks & Reporting (insert detailed or aggregated data – syntax text & error report, consistency checks, quality report)
- Processing (detailed biological & landings data -> datacalls)
- Filter data, advanced query tool, export
- Mapping

Med&BS RDBFIS: Overview

Data sets



- FDI
- Med&BS RCG (detailed biological data), landings
- Med&BS
- GFCM/DCRF
- Species lists
- Coding system
- Spatial data
- Environmental data
- MEDITS data

Med&BS RDBFIS: Overview

Stored data



- Through datacall: Med&BS, FDI, GFCM/DCRF, RCG
- EU fleet register
- EU CIRCABC (port location by Master Data Register)
- WoRMS (World Register of Marine Species)
- ITIS (Integrated Taxonomic Information System)
- MEDITS data (GRC), MEDITS TM Species
- EMODNET (bathymetry)
- Spatial data from several sources of information
- Codification system (incl. RDBES)

Open source in information technologies were fully adopted (2020-2023 EC strategy “Think Open”)¹



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RDBMS: **PostgreSQL**

Spatial and geographic objects: **PostGIS, Geoserver, Map objects**

Graphical interface for the front end of the platform: **Angular Web Application Framework**

Back end of the platform: **Spring Framework**

Authentication & Authorization: **Spring Security OAuth2 & JSON Web Token**

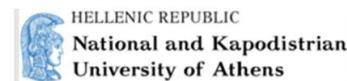
Web Application Server: **Apache Tomcat**

Persistence: **Hibernate Object Relational Mapping library**

Programming: **R and Python programming languages**

Libraries/Packages: **R libraries for statistical computing and graphics**

The RDBFIS was developed in the Hellenic Centre for Marine Research (HCMR);



Hosting, maintenance and further development of the Regional Database for the Mediterranean and Black Seas*

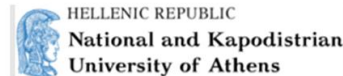
*Under FRAMEWORK CONTRACT – EASME/EMFF/2020/OP/0021
Duration: 24months, Project Start: April 1st 2023*

Purpose of the project

The main aim of the study is to work on the hosting, maintenance, fine-tuning and/or further development of the end product of regional grant RDBFIS and to provide support to the users of the end product.

As a follow up to the RDBFIS grant and taking into account that a solution for permanent hosting is currently lacking -COM proposes a temporary solution for hosting for the next two years.

** Three options have been elaborated so far: JRC, GFCM and ICES. The MS and the RCG Med & BS expressed preferences for JRC and GFCM, whereas ICES was not favoured. COM later announced that JRC is no longer an option for hosting.*



Partners (12)

Hellenic Centre for Marine Research (HCMR)

Coispa Tecnologia & Ricerca Scarl (COISPA)

Consorzio per il Centro Interuniversitario di Biologia Marina ed Ecologia Applicata G. Bacci (CIBM)

Italian National Research Council (CNR) (Istituto per le Risorse Biologiche e le Biotecnologie Marine (CNR-IRBIM) and Istituto per il Rilevamento Elettromagnetico dell'Ambiente (CNR-IREA))

Nisea società cooperativa (NISEA)

University of Athens (UOA)

University of Thessaly (UTH)

Hellenic Agricultural Organization Demeter (HAO Demete)

Ministry of Agriculture, Rural Development and Environment of Cyprus - Department of Fisheries and Marine Research, Republic of Cyprus (DFMR)

National Institute for Marine Research and Development "Grigore Antipa" (INCDM)

Institute of Oceanography and Fisheries (IOF)

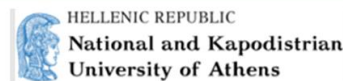
Institute of Oceanology BAS (IO-BAS)

Non-partners with a significant contribution

Executive Agency for Fisheries and Aquaculture, Bulgaria (Simona Vasileva NICHEVA)

Ministry of Agriculture, Directorate of Fisheries, Croatia (Ivana VUKOV)

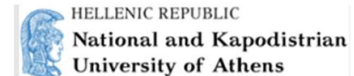
Fisheries Research Unit, Department of Fisheries and Aquaculture, Malta (Jurgen Mifsud)



To populate the system with data: To this end, the technical elements of a data call/ data request to be addressed to the relevant Member States and actors of the region, such as RFMOs will be drafted. DG MARE will assist in this process and follow up to ensure provision of the data. DG MARE will equally assist, if there is a need to access data from existing sources/databases. The requested datasets to be stored in the RDBFIS will refer to the period:

- ✓ 2002-2022 for Med&BS datacall,
- ✓ 2013-2022 for FDI datacall,
- ✓ 2017-2022 for GFCM/DCRF datacall,
- ✓ Med&BS RCG data (DCR & DCF: fishing intensity, landings, detailed biological data).
- ✓ MEDIAS data

RDBFIS syntax and quality checks routines will be performed to ensure highest quality and reliability (including MEDIAS processed and trawl data). During this period, the RDBFIS will be fully operational.

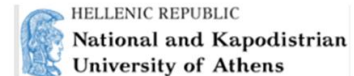


Further development:

*A further improvement is concerning the consistency of data quality checks. Specifically, particular attention will be paid to enhancement of the quality checks considering the **RDBES formats**, focusing on the hierarchies applied in the Mediterranean for the biological samplings;*

*Concerning the **MEDITS survey data**, another improvement to be included in the RDBFIS is represented by the embedding of an upgraded **BioIndex R** package that provides relevant statistics on survey data, as biomass and density indices by year, length-frequency distributions, recruitment/spawner indices and maps;*

*The **integration of MEDIAS survey into RDBFIS** will be implemented with the assistance of MEDIAS chair and scientists;*



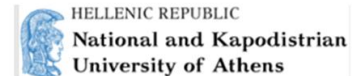
Further development:

Data elaboration routines as well as data entry forms for stomach content, PETS, alien species, Eggs&Larvae and recreational fisheries is foreseen to be developed;

Fleet analysis: Considering that: (i) several components of the application will have open access and (ii) the usefulness of disseminating information about Europe's commercial fishing fleet, a dynamic tool will be developed portraying the evolution of fleet dynamics in Europe;

FDI spatial checks: R routines already implemented in JRC supporting the FDI EWG works, will be incorporated into RDBFIS. Discussions have started with the R routines developers and a meeting is scheduled to discuss technical integration issues in RDBFIS;

Work Plan and Annual Reports: An effort will be made to enable Member States to send the Work Plan and Annual Reports online through a web based form. Syntax and consistency checks are foreseen to be implemented;

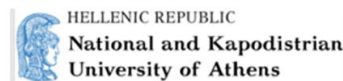


Further development:

Integration of fleet economic data;

The goal is to include as much as possible information collected in the FW of DCF into RDBFIS.

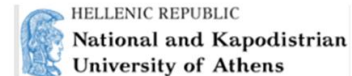
One of the advantage of including fleet economic data into RDBFIS is that quality checking and processing routines could be performed on the DCF data submitted in 4 datacalls (FDI, Med&BS, ECON, GFCM/DCRF) with the aim to decrease discrepancies.



Integration of fleet economic data;

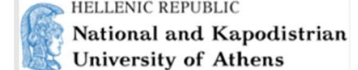
The integration of the Fleet Socio-Economic data in the RDBFIS will consider the following points:

- the data to be submitted in the RDBFIS will follow the formats, guidelines and vocabularies specific to the type of data associated with the multiannual Union Programme for the collection and management of data in the fisheries and aquaculture sectors (EU 2021/1168);
- the DCF codification system and the aggregation levels defined in the ANNEXES of data call will be incorporated and fully supported in the system. Reference lists will be constructed to increase the performance and support the consistency and integrity of the database. In particular, among the aggregated data the formats required by the different data calls will be considered (DG MARE AER, GFCM DCRF)
- the types of datasets that will be included will be 'aggregated data' (the output resulting from summarising the primary or detailed data for specific analytic purposes, Art.3 (7) EU 1004/2017). No 'primary data' will be hosted, in line with the perspective of article 15 EU 1004/2017;



Integration of fleet economic data;

- The R library of data validation and quality check functions developed within the RDBFIS will be integrated with specific criteria to assess the consistency of the economic data. Such criteria will follow the same structure of the criteria already implemented in the RDBFIS for the validation of biological data. In particular, the following will be implemented:
 - ✓ a data validation procedure (e.g., format, allowed ranges checks), in order to be correctly imported in the RDB data quality checks;
 - ✓ a data check procedure to obtain data that are both internally consistent (e.g., respect to all the data stored in the same table) and coherent (for example in terms of temporal and spatial coverage) with the information reported in the tables of the same group (for example of the same data call).
- Metadata such as the type of data collection scheme, data sources, planned sample rates, will be also integrated in the RDB. This will aim at achieving a twofold objective: support MS in presenting WP and AR tables and providing information to end users to be able to use and interpret statistics. *The integration of fleet economic data will need to be discussed both with MS and RCG ECON*

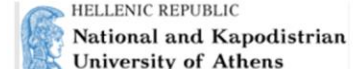


RDBFIS – II website

<http://rdbfis.eu/>

We thank you for your attention

Med&BS
RDBFIS - II



Significant contribution by

Executive Agency for Fisheries and Aquaculture, Bulgaria (Simona Vasileva NICHEVA)

Ministry of Agriculture, Directorate of Fisheries, Croatia (Ivana VUKOV)

Fisheries Research Unit, Department of Fisheries and Aquaculture, Malta (Jurgen Mifsud)