MED4EBM - Mediterranean Forum For Applied Ecosystem-Based Management

Work Packages 3 and 4. Technical illustration of EB-ICZM-DSS applications (MED4EBM deliverables WP3.6, WP3.7, WP3.8, WP3.9).

Release 1, Covering Phase 1 of Work Packages 3 and 4 implementation course. November 11th, 2020.

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Content

ABOUT THIS DOCUMENT

The present document illustrates technical elements of and provides key screenshots from the four software applications established by AdT, INSTM, JREDS, and TCNR using the PROGES-ISP software shell, which constitute the four Ecosystem-Based Integrated-Coastal-Zone-Management Decision-Support-Systems (EB-ICZM-DSSs) established throughout the implementation of Work Packages 3 and 4 of the partnership project *Mediterranean Forum For Applied Ecosystem-Based Management* (MED4EBM).

Detailed planning and reporting on the execution of the said Work Packages 3 and 4 are reported in the report tiled *MED4EBM Work Packages 3 and 4. Technical Report on activities executed and deliverables produced (*uploaded in the Library section of MED4EBM website at www.enicbcmed.eu/projects/med4ebm).

This report is conceived and structured as an evolving document, which will be progressively updated and integrated along the execution course of the various phases for the implementation of the said Work Packages 3 and 4. When each of these phases is completed, a new release of this document is issued which includes the reporting facts on this very phase.

The current release of this report covers Phase 1, which has been executed between June 15th and November 12th, 2020. The bulk of this implementation period falls in MED4EBM 2nd Semester of implementation (April 3rd to October 2nd, 2020). However, due to the 8-months-long negotiation between the ENI CBC MED Management Authority and the MED4EBM Lead Applicant on administrative issues, MED4EBM actual implementation activities could start only mid-June 2020; therefore Phase 1 execution period must be more appropriately considered to coincide with the first four months of MED4EBM deployment course.

The various releases of this report, as well as all the related MED4EBM deliverables and working documents mentioned in this document, will be uploaded in the Library section of MED4EBM website (www.enicbcmed.eu/projects/med4ebm).

1 - TECHNICAL ILLUSTRATION OF THE FOUR MED4EBM EB-ICZM-DSS APPLICATIONS (MED4EBM DELIVERABLES WP3.6, WP3.7, WP3.8, WP3.9)

Four software applications established by AdT, INSTM, JREDS, and TCNR using the PROGES-ISP software shell, which constitute the embryonic stage of the four EB-ICZM-DSSs which represent MED4EBM Output 3.2. These applications will be progressively developed/enhanced all-through the implementation of WP3 and WP4 by integrating into it all the produced deliverables as they will be ready (e.g. EB-ICZM reference models; indicators and related datasets; EB-ICZM management measures).

At this initial stage, the said applications integrate the above-mentioned *Thematic Scoping and Key-Stakeholders Mapping Reports* and some contextualised sample of the *System Boxes-and-Arrows diagrams* constituting the backbone of the EB-ICZM reference models. These elements of the EB-ICZM-DSS software applications are illustrated in the following sections.

1.1 - Thematic Scoping and Key-Stakeholders Mapping Report

First step was focused on the drafting of a *Thematic Scoping and Key-Stakeholders Mapping Report* for each of the four MED4EBM target areas (MED4EBM Deliverables WP3.2, WP3.3, WP3.4 and WP3.5). They consist of synoptic text tables, named System Matrices, which, defines the following essential elements to plan and implement EB-ICZM applications:

- main components of key coastal and marine biophysical systems,
- plant Species of interest,
- animal Species of interest,
- coastal infrastructures,
- economic activities,
- available data.

This first step of the EBM Protocol aims at defining the spatial and thematic scopes of the EB-ICZM-DSS applications, as well as at identifying key stakeholders, potential partners and their related roles in the project. This information help assessing the feasibility and the effort needed to execute the project. The *Thematic Scoping and Key-Stakeholders Mapping Report* also includes a brief description of all the components and sub-components there listed, with circumstantial or local information included if available. Key management issues and relevant actors and stakeholders are also associated to each of the above listed elements in the same text tables.

Fundamental support for this step was a specific format prepared and technical instructions provided by PROGES as well as one of the specific features of the PROGES-ISP software as illustrated in the Fig.2.1.

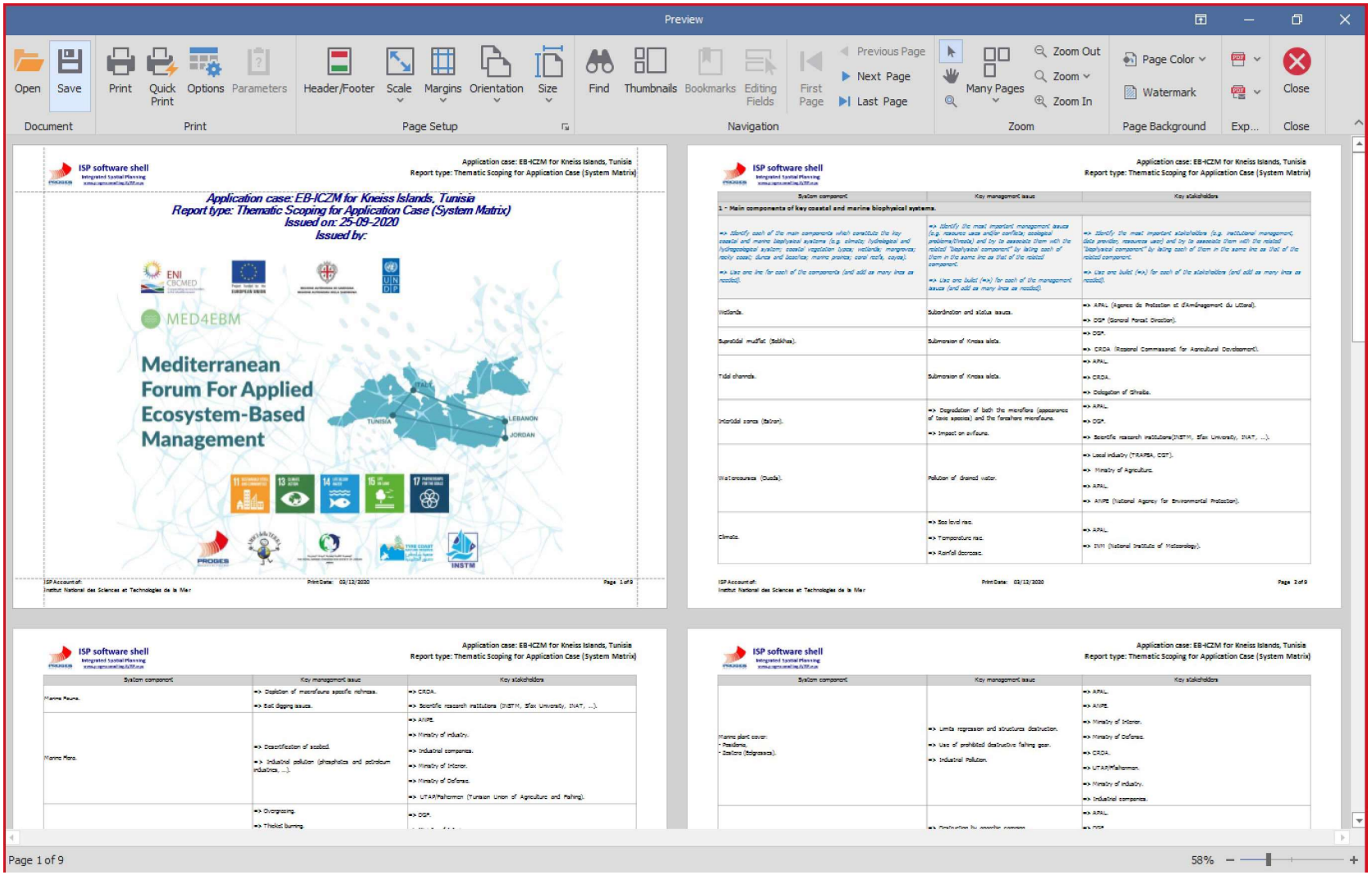


Fig.2.1: Example of *Thematic Scoping and Key-Stakeholders Mapping Report* drafted by INSTM Partner for KNEISS ISLAND.

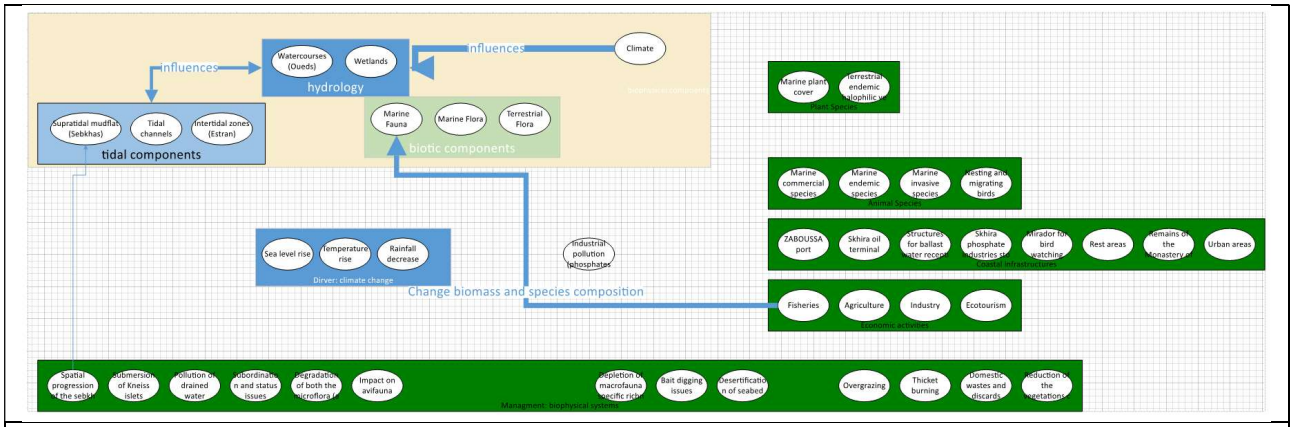
1.2 - Ecosystem Context Analysis: from System Matrices to System Diagrams

Second step focused the starting of the *Ecosystem Context Analysis,* an analytical procedure which aims at developing a structural model of the ecosystem components and services, the associated human activities, as well as the interactions between them. It recognizes the key connections within and across the ecological and the human systems spanning over the focused area, so as to provide a manageable framework for understanding how ecosystems, biodiversity and human activities inter-operate in EBM applications. The *Ecosystem Context Analysis* allows establishing and managing a participatory analytical process which ensures an effective dialogue between all the stakeholders involved. This methodological procedure guided the four working teams from a conceptual representation of the system to be managed to a structural practical one.

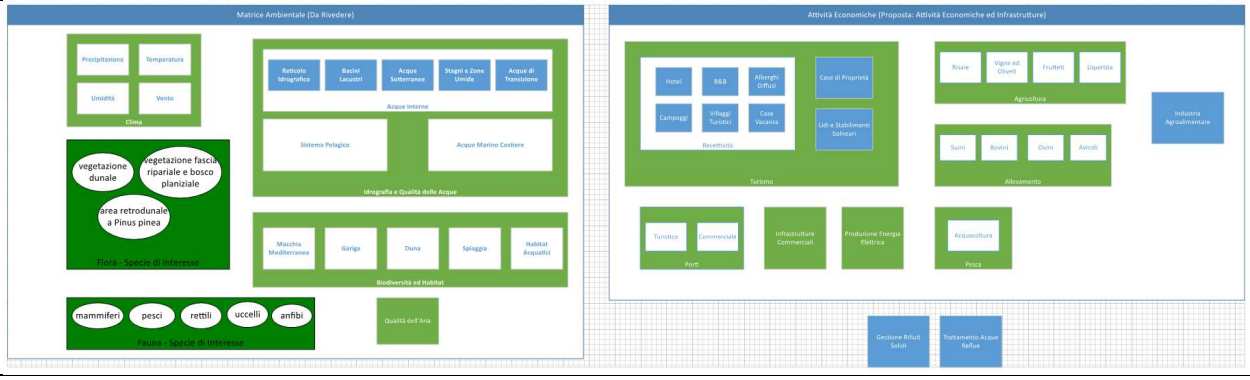
This process builds upon the identification of the major characteristics of the areas, as captured in the *Thematic Scoping and Key-Stakeholders Mapping Reports* described in the previous Section. These *Reports* consist of a set of text-tables (*System Matrices*) where all the components of the relevant environmental, social and economic systems are listed and illustrated, with components possibly comprising one or more sub-components.

The said *System Matrices* are transposed using the PROGES-ISP software tools into *System Diagrams*, were all the components and sub-components defined in each of the matrices are drawn in a system diagram as box items. Once all components and sub-components of the matrices have been drawn in the *System Diagrams*, the information reported in the matrices to describe the interactions between the components and sub-components are used to draw the initial set of links (arrows) between relevant components (boxes) of the diagrams. As mentioned, the PROGES-ISP software provides a specific feature for transforming the system matrices directly into diagrams, having only to refine the shape, the arrangement, the description of all the components and the related interconnections.

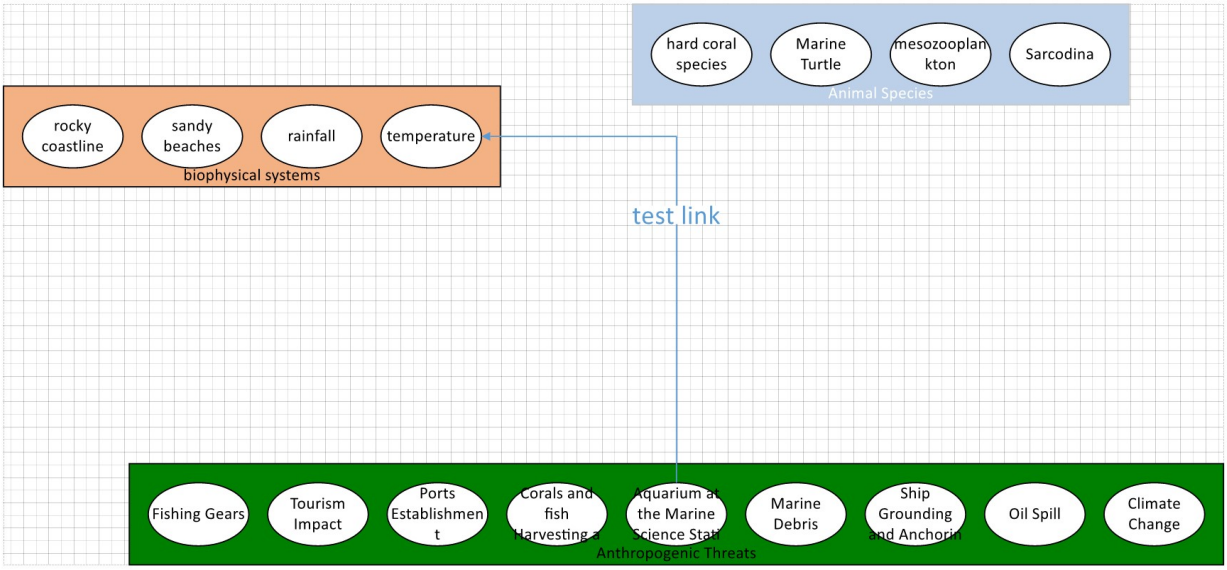
This new diagrammatic representation of the same information can help to identify possible inconsistencies and/or incompleteness of the model, either in the definition of components and sub-components in their interconnections. The four System Diagrams are reported table here below.



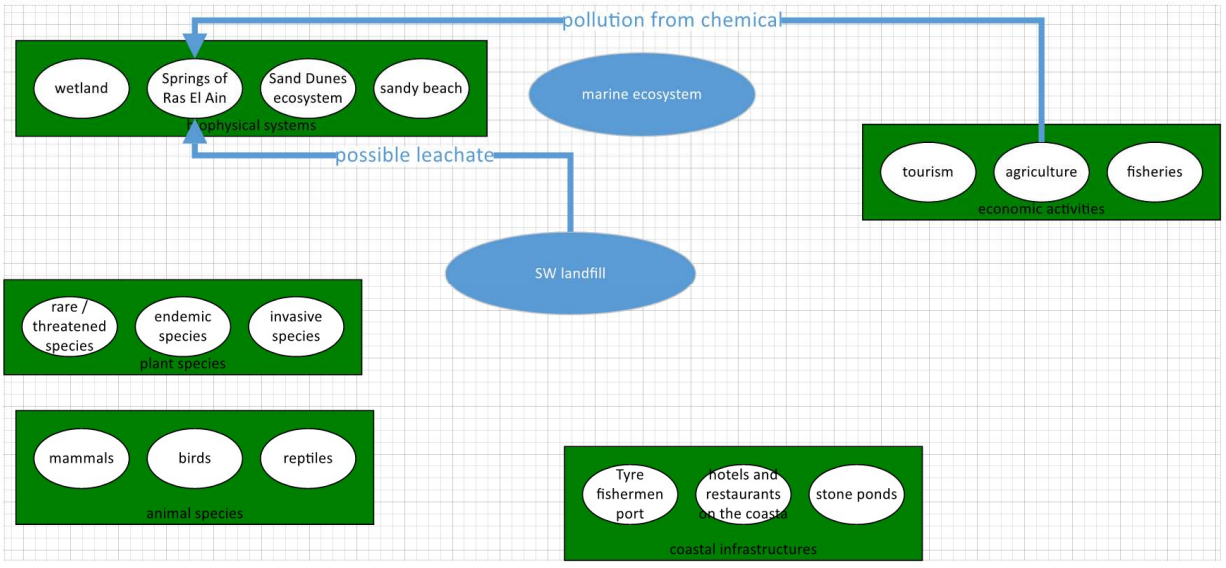
KNEISS ISLAND System Matrix (INSTM)



Riserva Naturale del Lago di Tarsia e della Foce del Fiume Crati System Matrix (ADT)



Royal Marine Conservation Society of Jordan System Matrix (JREDS)



Tyre Coast Nature Reserve System Matrix (TCNR)

The above illustrated *System Boxes-and-Arrows diagrams* constitute the backbone of the EB-ICZM-DSS reference models (as described in MED4EBM Working Document WD.WP3.1, Section 2.2.2).

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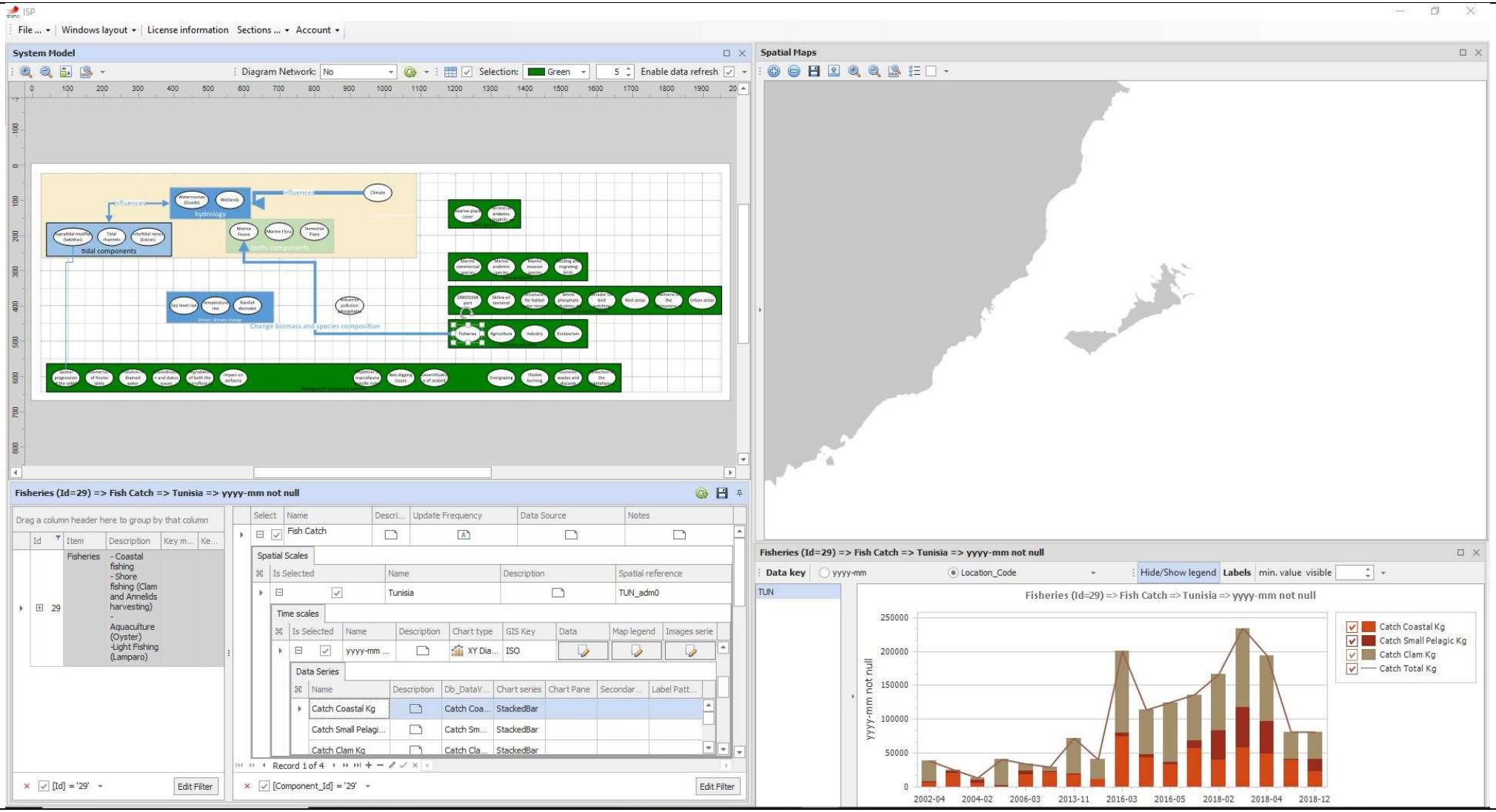
These *System Boxes-and-Arrows diagrams* are initial samples developed internally by MED4EBM Partners and will be further developed/rebuilt with the active contribution of key stakeholders during Phase 2 of the implementation of MED4EBM Work Packages 3 and 4.

1.3 - The four EB-ICZM-DSS applications

The four EB-ICZM-DSS applications developed, although still in an embryonic state, already contain data linked to the various components drawn. A remarkable milestone considering that every single activity described was implemented remotely.

These four EB-ICZM-DSS software applications can be downloaded and installed via the Microsoft ClickOnce software distribution technology; credentials for downloading, installing and accessing the EB-ICZM-DSS Applications are available to the four MED4EBM Partner's Focal Points. The use of the Microsoft ClickOnce online software publishing system allows to have a resident software installed on the local computer of the user, while at the same time being also able to benefit from a permanent online support to obtain any software update the PROGES will release in the future.
Screenshots from the four EB-ICZM-DSSs applications, as so far developed, are shown in the following pages.



KNEISS ISLAND EB-ICZM-DSS (INSTM)

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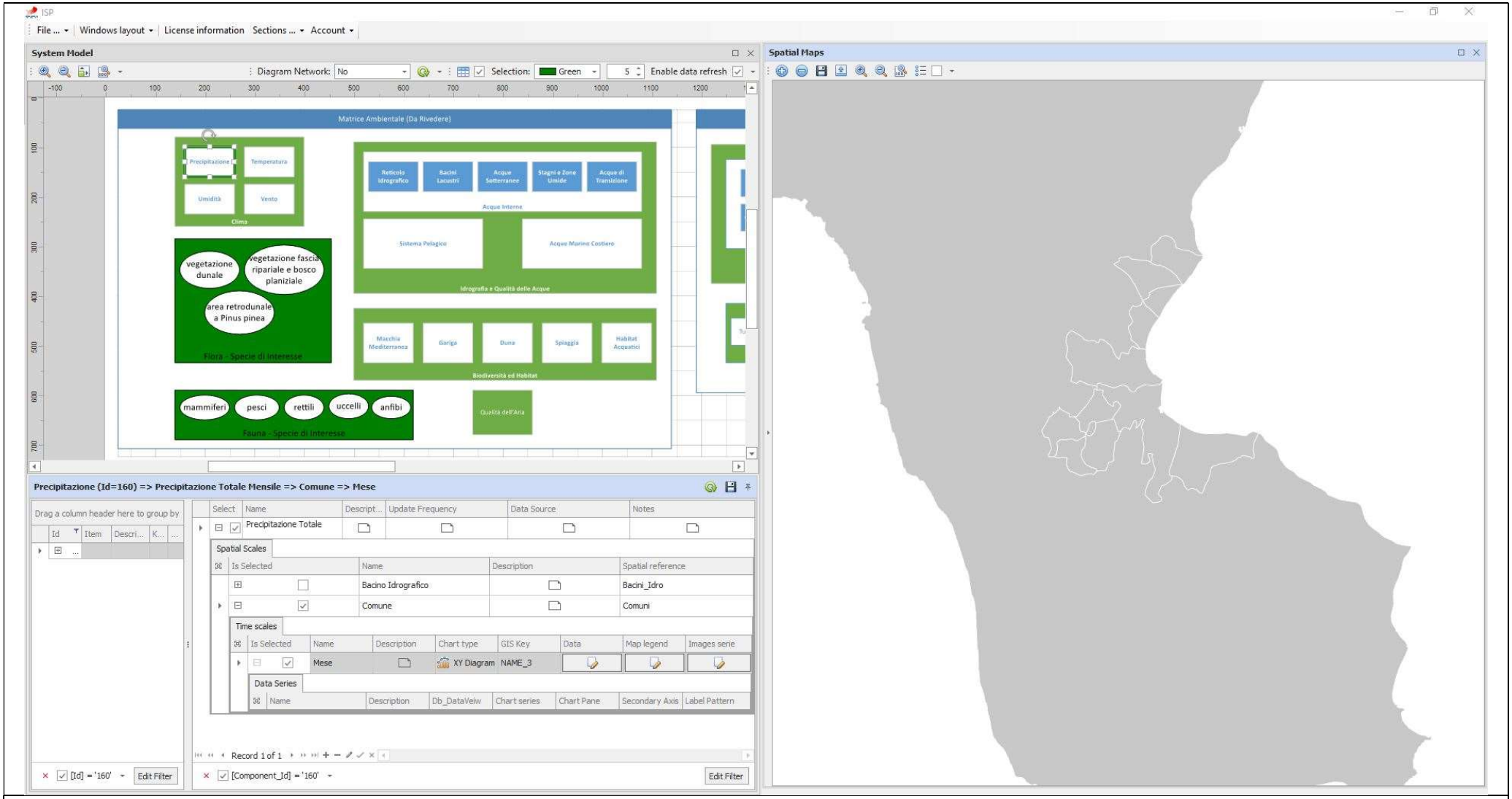

Riserva Naturale del Lago di Tarsia e della Foce del Fiume Crati EB-ICZM-DSSS (ADT)

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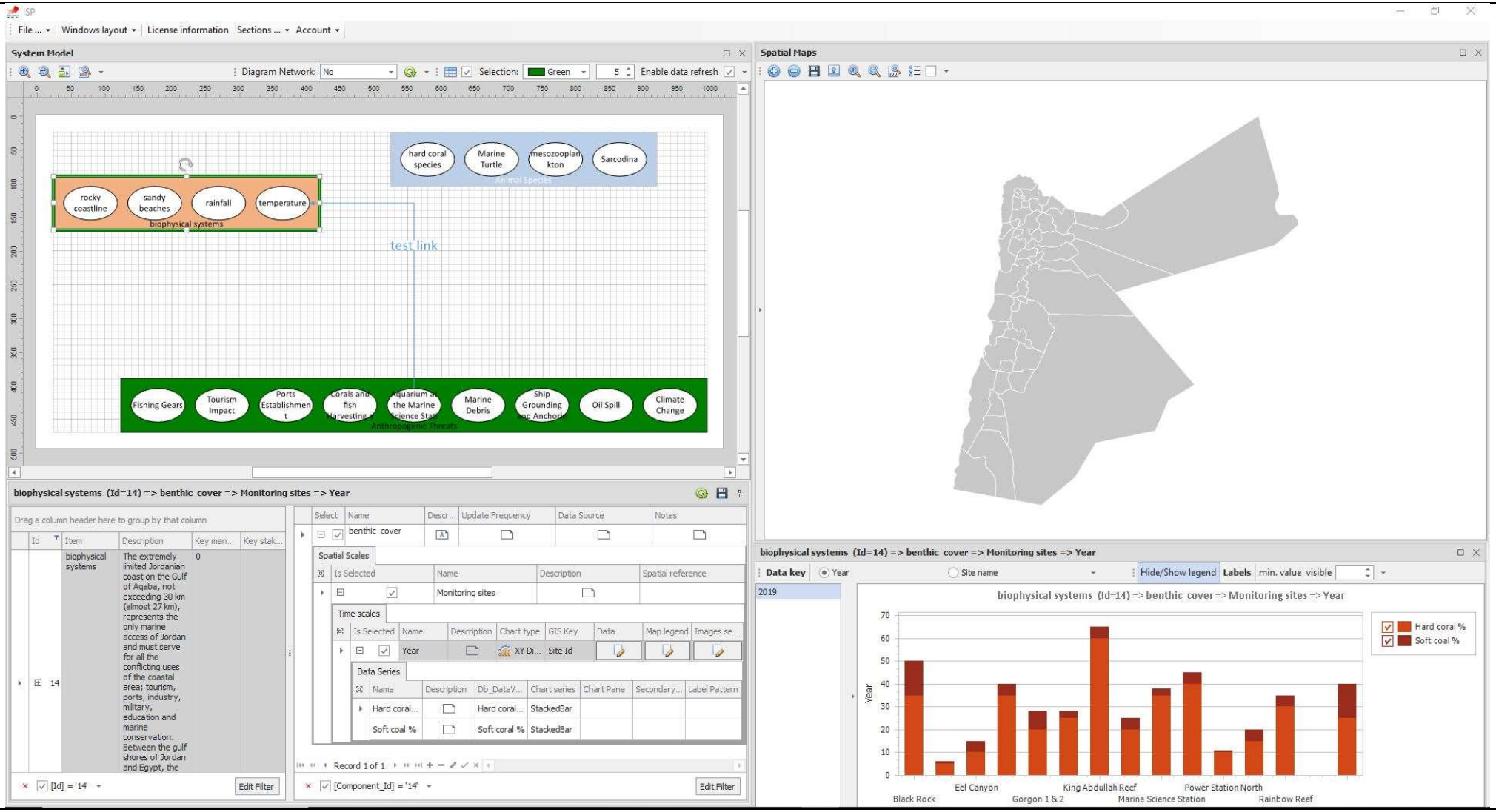

Royal Marine Conservation Society of Jordan EB-ICZM-DSS (JREDS)

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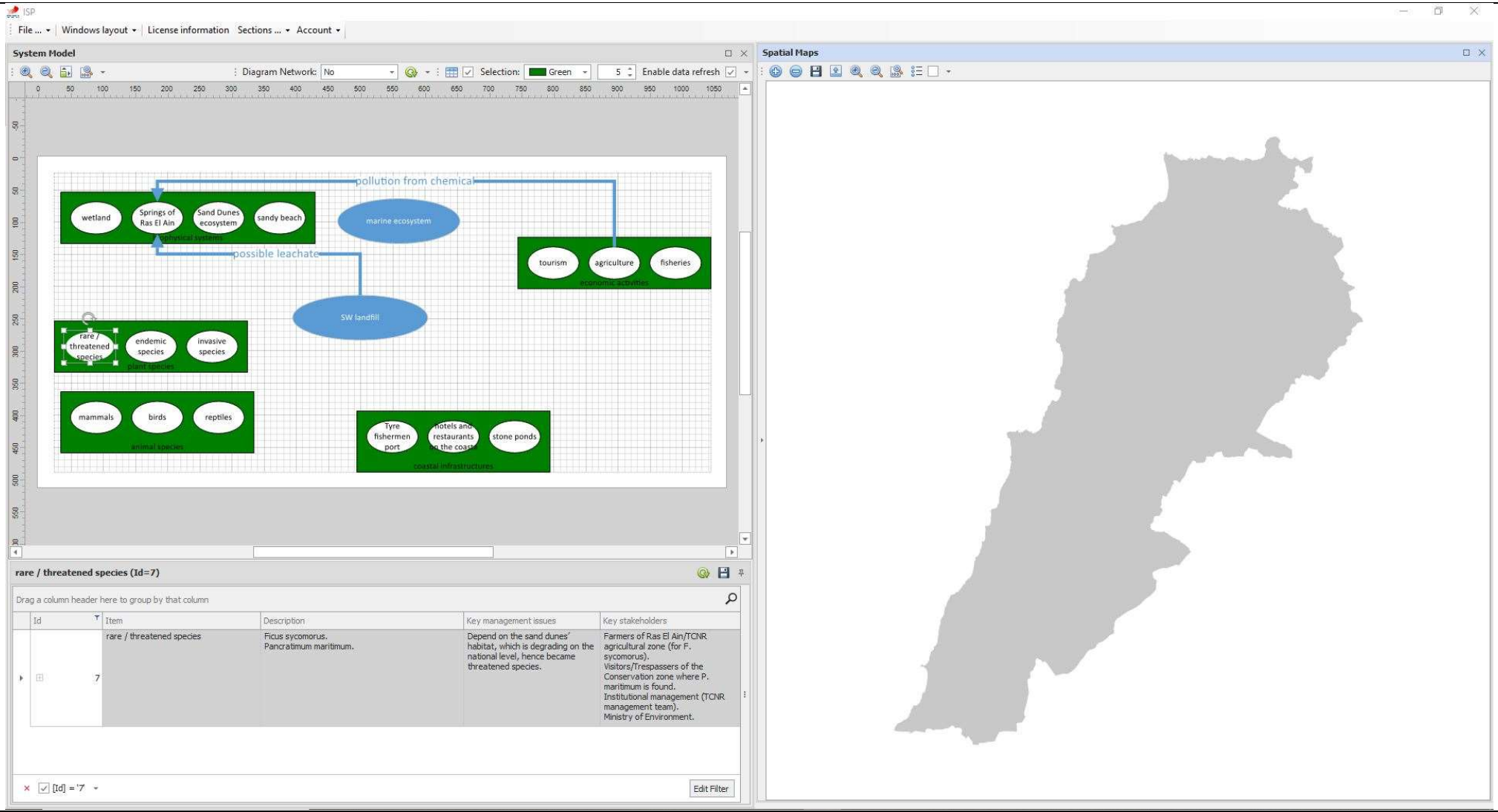

Tyre Coast Nature Reserve EB-ICZM-DSS (TCNR)

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