





MED4EBM - Mediterranean Forum For Applied Ecosystem-Based Management

Work Packages 3 and 4. Technical illustration of the Deliverables 3.2.1, 3.2.2, 3.2.3, 3.2.4.

Release 2, Covering Phase 2 and 3 of Work Packages 3 and 4 implementation course. May 18th, 2021.



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Content

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- **1.2** Ecosystem Context Analysis System Matrices.
- **1.3 Ecosystem Context Analysis System Diagrams.**
- **1.4 Deliverables produced.**





ABOUT THIS DOCUMENT

The present document reports on technical items related to the activities executed and the deliverables produced in the implementation course of Work Packages 3 and 4 of the *Mediterranean Forum For Applied Ecosystem-Based Management* (MED4EBM) partnership project.

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. 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 deployment of Phases 2 and 3, which has been executed between October 26th, 2020 and May 27th, 2021. The bulk of this implementation period falls in MED4EBM 3rd Semester of implementation (October 3rd, 2020 to April 2nd, 2021). 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. The bulk of this delay has indeed been recovered throughout the execution of Phase 1, 2 and 3.

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

1 - REPORT ON THE TECHNICAL ILLUSTRATION OF THE DELIVERABLES 3.2.1, 3.2.2, 3.2.3, 3.2.4

As a first tangible output of this phase of the MED4EBM Project four Applications established by AdT, INSTM, JREDS, and TCNR in close collaboration with the respective stakeholders were created using the PROGES-ISP software shell following intense training on the job sessions. These four Applications constitute the current stage of the four EB-ICZM-DSSs which represent MED4EBM Output 3.2. These software Applications will be progressively developed/enhanced all-through the implementation of WP3 and WP4 by integrating 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 stage, the said Applications have been realized following precise steps of the PROGES EBM-DSS methodology.

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 (Deliverables 3.1.5, 3.1.6, 3.1.7 and 3.1.8). They consist of synoptic text tables 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 EBM application, 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* includes also a brief description of all the components and subcomponents 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 ISP60 software as illustrated in the Fig.2.1 and Fig.2.2.





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ISP software she	1	Applicatio	n case: EB-ICZM for Tyre Coast Nature Reserve Report type: Thematic Scoping	1	ISP software she		Applicatio	n case: EB-ICZM for Tyre Coast Nature Reserve Report type: Thematic Scoping
	Project name: MED4EBM - Mediterranean Fo	rum For Applied Ecosystem-Based Manageme	int		Item	Description	Key management issues	Key stakeholders
	Report type: 1	for Tyre Coast Nature Reserve hematic Scoping rogetti di Sviluppo- S.r.I.			Sandy soil	Sandy soil (marine terraces) alluvial soil (mainly clay; upper stream, where citrus are	Poorly managed agricultural practices. In particular seasonal vegetable crops, heavy use of chemicals, consequences in water quality. Additional info are needed (soil composition). Overexploitation of water (no data available). No	e e e e e e e e e e e e e e e e e e e
Item	Description	Key management issues	Key stakeholders		Alluvial Soil	planted) used as irrigated vegetable production directly from springs. Upper part circus and banana, irrigated by wells and mainly from Litani project. (name project) Agriculture is	the policy in water management.	
Vophysical ystems	Identify each of the main components which constitute the key coastal and marine biophysical systems (e.g. dimate hydrological and hydrogeological system: coastal	isonering memosi important management issues (e.g. resource uses and/or conflicts; evolution of the the second	Identify the most important stakeholdes (eg. institutional management, data provider, resources user) and try to associate them			intensive. Fertilizers and other chemicals are used	Anyway, neighbouring agricultural zone that are	Identify the most important stakeholdes (en
	Nyarological and nyarogeological system: coasta Wetland is designated as Ramsar site.	Presence of an invasive plant species Heterotheca	Institutional management (TONR management	Pla	nt spacies	Identify key groups of species which, for any reason, are particular interest for the management of the based ecosystems (e.g. endemic; threatened; imaske;	issues (e.g. resource uses and/or conflicts) ecological problems/threats) and try to	Identify the most important stakeholdes (eg. institutional management, data provider resources user) and try to associate them
Wetland	and a second second second	subaxillaris", spreading at the expense of the natural wetland flora and threatening the	team). Scientific expertise (flora experts).	E	Rare/Threatened species	consystems (e.g. endernite, uncatened, midhits	according to providency concessy and by them	Contraction and your associated Blim.
Springs of Ras El Ain	Springs are located in the Agricultural zone of the reserve, provide domestic water to Tyre city and its suburbs, ingation water to Ras El Ands, and Riow out into the sea constituting an Estuary, due to the mixture of sait and fresh waters.	ecosystem's wellbeing - Pollution with agrochemicals.			Terrestrial Species	Ficus sycomorus. Pancratimum maritimum.	Depend on the sand dunes' habitat, which is degrading on the national level, hence, became threatened species.	Farmers of Ras El Ain/TONR agricultural zone (for F. sycomorus). Visitors/Trespassers of the Conservation zone where P. maritimum is found. Institutional management (TOIR management Farmers of Ras El Ain/TONR agricultural zone (for F.
	Estuary is rich in biodiversity, key environment for fish as well	Disturbance and vandalism by trespassing polluten Disturbance from the adjacent touristic zone's	team) (A 8. B).		Narine species	Seagrasses Sea weeds. Macroalgae (Cystoseira sp., brown species)		sycomorus). Visitors/Traspassers of the Conservation zone where P. maritimum is found. Institutional management (TCNR management
Sand Dunes Ecosystem	Located in the conservation zone, with well-established relative vegetation.	activities. In the South part of the Reserve there is another	Municipality of Tyre. Ministry of Environment.	E	Indemic species			
	regelation. Important nesting site for sea turdes (Caratta caretta).	invasive species (fora. Latrana, add species), already affecting the native flora. For now, this species is not affecting the Reserve yet. Size of visitors during the beach season overcomin the carrying capacity of the burristic zone.	International organizations involved in endangered sea turtles' conservation (SPA RAC; IUCN; MedPAN)		Terrestrial Species	Astragalus berytheus.	Endemic to the Labanese and Palestinian seachores, with habitat as sand dunes that are not found but in TCNR in Lebanon. 20 individuals few years, affected by invasion of	Institutional management (TONR management team). Ministry of Environment.
		stretching beyond the region covered by the 50	Institutional management (TCNR management team).		nvasive species		exotic species. (Eterotica subaxillaris) Eradication	N
Sandy Beach	The most beautiful and cleanest public beach in Lebanon.	permitted klosks (temporary hut-restaurants) by Ministry of Environment to both sides (northern and southern sides of the beach uncovered by the klosks' services) by	Municipality of Tyre.		Terrestrial Species	Heterotheca subaxillaris.	Wind-transported seeds from Palestine, Well	Institutional management (TCNR management taam).
Shallow water	Sea water, sea bottom, intertidal zone. Very reach ecosystem, important species Seagrass (see species), two marine turtles, seahorses,marginatus, vermited snails.						sand dunes of TCNR's Conservation zone.	Scientific/Academic expertise (flora experts).
Marine biodiversity					Marine species			team). Scientific/Academic expertise (flora experts).
Deep water Marine biodiversity	Clean water.			c	ther species			
Agricultural Ecosystem								
P subscriber: PROGES - Progetti di S	viluppo - S.r.l. Print Date	2021/05/18	Page 1of10	БР :	ubs <mark>criber: PROGES - Progetti d</mark> i I	Sviluppo - S.r.I. Print Dr	nte: 2021/05/18	Page 2 of 10
		Applicatio	n case: EB-ICZM for Tyre Coast Nature Reserve				Applicatio	n case: EB-ICZM for Tyre Coast Nature Reserve
ISP software she			Report type: Thematic Scoping	2	ISP software she Integrated Spetial Plennia www.angecondition.it/life	1		Report type: Thematic Scoping
Item	Description	Key management issues	Key stakeholders	1.0	Item	Description	Key management issues	Key stakeholders
inimal species	*> Identify key groups of species which, for any reason, are of particular interest for the management of the focused ecceptions (e.g. endemic: threatened: invester commercial)	Identify the most important management issues (e.g., resource uses and for conflicts ecological problems/threats) and try to associate them with the related "biophysical	Identify the most important stakeholdes (eg- institutional management, data provide: resources user) and try to associate them with the related "biophysical component" by Researchers & Universities (monitoring & evaluation).			Checklist is updated. 4 Ram. 5 Endemic. 7 Threatened (globally: Fako naumanni/Lesser	They need to create Environmental Law Enforcement Unic (branch of Police force), now existing only in Beirut but not in all country. Poaching. One of the worst countries in terms of poaching. Measures now taken to stop the poaching. 75%	
Mammals			CNR5 - Lebanon (monitoring & evaluation)			Kestrel (very rarely seen): Crex crex/Corncrake. Regionally:	birds saved compared with the past. South part is	

Fig.2.1: Example of *Thematic Scoping and Key-Stakeholders Mapping Report* drafted by TCRN Partner for Tyro Coast Nature Reserve.





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ISP software shell bregende Spetial Persong	Appl	ication case: EB-ICZM for Golfo di Corigliano (Italy) Report type: Thematic Scoping		ISP software shell Integrated Spatial Planning severatory southing all Areas		Applicatio	n case: EB-ICZM for Golfo di Corigliano (Italy) Report type: Thematic Scoping
Application case: E Report	ean Forum For Applied Ecosystem-Based Manag -ICZM for Gotfo di Corigliana (Italy) type: Thematic Scoping GES - Progetti di Sviluppo - S.r.I.	ement		Item Principali sistemi biolisici costieri e marini	Description Componenti principali che costituiscono i sistemi biofisici costeri e marini chivegi es. Clime stasti idrologico e idrogoe logico tipi d' expetazione costieras zone milde mangrovico coste nocione dune e spiagge praterie marine: barriere coraline).	Key management issues Problematiche gestione più im portant (as Usi e / o confluid delle risorse problem i / minacce ecologiche) e cercare di associarle alla relativa "componente	Key stakeholders Stakeholder più importanti (as. Gastone istituzionale formitore di dati, ublizzatore di risona) e cercare di associarli alla relativa "componente biofisica "elencandoli ciascuno ndle stessa
MED4EBM		(A)	E	Sistema idrologico ed idrogeologico - Reticolo idrografico	Retcolo idrografico	ciottolose e sabbiose, del letti fluviali: depositi di litorale. Suoli e pressione da agricoltura intensiva	Regione, Comuni. Ente gestore Riserva e ZSC. Consorcio di bonfica Università Admissione Scientifica Biologi senza frontiere ARPACU.
Mediterranean	4.900×	ACRC 1		Acque sotterranee		Alluvioni mobili ed alluvioni fissate dalla vegetazione. Dune e sabbie eoliche stabilizzate. Alluvioni mobili ciotolose e sabbiose, dei letti fluviali: depositi di litorale. Suoli e pressione da agricolture intensiva	Regione, Comuni, Ente gestore Riserva e ZSC. Consorto di bonifica Università Associazione Scientifica Biologi senza frontiere ARPACAL
Forum For Applied	and and			Stagni e zone umide costiere	Stagni e zone umide (presenza di stagni e lagune retrodunali) Acque di transizione. Vegetazione dei luoghi umidi. Vegetazion alo-igrofila	e interación de agricología interación presente	Associazione Scientifica Biologi senza frontiere ARPACAL
Ecosystem-Based Management	TUNISIA	LEBANON JORDAN		Vegetazione arborea ed arbustiva costiera	Boschi planiziani. Boschi njanisli. Gespuglieti a tamenici	Impatto da parte dell'agricoltura intensiva. Taglio abusivo. Pascio abusivo. Sostitucione con rimboschimenti di pini o eucalipti. Presanza di specie alloctone, diventate invasive	LIPU (Progetto cicogne) ARSAC Regione, Comuni Cooperative e/o produttori singoli Associazione Scientifica Biologi senza frontiere Ente gestore Riteriva e ZSC Universită
	14 (man) 15 (man) 17 (man) 17 (man) 18 (man) 19 (ma	123		Macchia mediterranea	Formazione vegetazionale arbustiva costituita tipicamente da specie scientifile. Spechotà del luogo: Specie spontanea, diffusa e utilizzata è liquarizia glabra.	agrumeti e risale con uso dei prodotti anteriaria, inclusi agrumeti e risale con uso dei prodotti chimici (Carta ARSAC da reperire). Carte sulla vulnerabilità dei suoli ai nitrati, uso di	LIPU (Propetto cicogne) ARSAC Regione, Comuni Cooperative e/o produttori singoli Associazione Scientifica Biologi senza frontiere Erne gestore Riseriva e ZSC Università
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ISP software shell Ingrand stand Priving	Аррі	ication case: EB-ICZM for Golfo di Corigliano (Italy) Report type: Thematic Scoping		ISP software shell Hearned Spatial Plenning		Applicatio	n case; EB-ICZM for Golfo di Corigliano (Italy) Report type: Thematic Scoping
Item Description	Key management issues	Key stakeholders		Item	Description	Key management issues	Key stakeholders
Facia di vegitazione largo la costa costituita da formaz respujeles discontrue. La garga presele la marchia in successione, da mare ve entoners.	protetta ed elencati nei documenti delle riserv	e Cooperative e/o produttori singoli		Vegetazione Dunale	Importante ecosistema psammofilo costiero (spiagge, dune mobil, dune consolidate, retroduna). Principali specie rase e do mentevol di prostoriore: Saroportum spinosum: Pancatum maritimum; Ephorbia parallas; Ephedra distachia; Romulea ro	mezzi o persone, distruzione piante). Rifiuti abbandonati e/o portati dalle correnti.	Associazione Scientifica Biologi senza frontiere Università Erre gestore Riserva e 2SC ARSAC Regione, Comuni Stazione omotologica calabrese

Fig.2.2: Example of *Thematic Scoping and Key-Stakeholders Mapping Report* drafted by ADT Partner for Riserva Naturale del Lago di Tarsia e della Foce del Fiume Crati System Diagram.





1.2 - Ecosystem Context Analysis – System Matrices.

Second step was the *Ecosystem Context Analysis*, procedure with the aim of 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, started with the identification of the major characteristics of the areas (*Thematic Scoping and Key-Stakeholders Mapping Report*), continued with the transposition of the above mentioned preliminary analysis documents into a *System Matrix*; a text-tables where all the components are listed and illustrated, with components possibly comprising one or more sub-components.

Also for this activity a specifically developed module of the PROGES ISP60 software package was used as illustrated in the Fig.2.3 and Fig.2.4.



n Matrix			
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n	Description	Key management issues	Key stakeholders
Biophysical systems	Identify each of the main components which constitute the key coastal and marine biophysical systems (e.g. climate; hydrological and hydrogeological system; coastal vegetation types; wetlands; mangroves; rocky coast; dunes and beaches; marine prairies; coral reefs).	Identify the most important management issues (e.g. resource uses and/or conflicts; ecological problems/threats) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.	Identify the most important stakeholders (e.g. institutional management, data provid resources user) and try to associate them with the related "biophysical component" b listing each of them in the same line as that of the related component.
Wetland	Wetland is designated as Ramsar site.	Presence of an invasive plant species Heterotheca subaxiliaris", spreading at the expense of the natural wetland flora and threatening the ecosystem's wellbeing. (data to be added)	Institutional management (TCNR management team). Scientific expertise (flora experts). Professor (data provider)
Springs of Ras El Ain	Springs are located in the Agricultural zone of the reserve, provide domestic water to Tyre city and its suburbs, irrigation water to Ras El Ain lands, and flow out into the sea constituting an Estuary, due to the mixture of sait and fresh waters. Estuary is rich in biodiversity, key environment for fish as well	 Pollution with agrochemicals. Possible leakage of formal dumpsite's leachates to the groundwater sources of Ras El Ain. (data to be added) 	Farmers (A). Union of Tyre Municipalities (B). OMSAR (B). Ministry of Environment (B). Institutional management (TCNR management team) (A & B).
Sand Dunes Ecosystem	Located in the conservation zone, with well-established relative vegetation. Important nesting site for sea turtles (Caretta caretta).	Disturbance and vandalism by trespassing polluters. Disturbance from the adjacent touristic core's activities. In the South part of the Reserve there is another invasive species (flora: Lantana, add species), already affecting the native flora. For now, this species is not affecting the Reserve yet.	Institutional management (TCNR management team), Municipality of Tyre, Minstry of Environment, International organizations involved in endangered sea turtles' conservation (SPA RAC; MedPAN),
Sandy Beach	The most beautiful and deanest public beach in Lebanon.	Size of visitors during the beach season overcoming the carrying capacity of the touristic zone, stretching beyond the region covered by the \$0 permitted kicks (temporary hut-restaurants) by Minstry of Environment to both sides (northern and southern sides of the beach uncovered by the kocks' services) by independent tourists whice do not bide by the eco-rules imposed on the owners of the kicks exploiting the beach during the summer.	Municipality of Tyre.
Shallow water	Sea water, sea bottom, intertidal zone. Very reach ecosystem, important species Seagrass (see species), two marine turties, seahorses, ragranesus, vermited single.		
L Marine biodiversity			
Deep water	Clean water.		
U Marine biodiversity			
Agricultural Ecosystem			
Sandy soil	Sandy soil (marine terraces)	Poorly managed agricultural practices. In particular seasonal vegetable crops, heavy use of chemicals, consequences in water quality. Additional info are needed (soil composition).	
Alluvial Soil	alluvial soil (mainly day; upper stream, where dtrus are planted) used as irrigated vegetable production directly from the springs. Upper part dtrus and banana, irrigated by wells and mainly from Litani project. (mame project.) Agricultures in is intensive. Fertilers and other chemicals are used. Accumulation of nutrients in soil (N) goes to ground water, and finally to springs.	Overexploitation of water (no data available). No policy in water management. There are studies in sediment quality in marine ecosystem (more urbanised), but not in this area. Anyway, neighbouring agricultural zone that are comparable. Here the eutrophication problem is not relevant yet.	
ant species	Identify key groups of species which, for any reason, are of particular interest for the management of the focused ecosystems (e.g. endemic; threatened; invasive; commercial. Note that plant community; fabilitar may be already included under Vegetation Types).	Identify the most important management issues (e.g. resource uses and/or conflicts; ecological problems; threats) and try to associate them with the related "biophysical component by listing acts of them in the same line as that of the related component.	Identify the most important stakeholders (e.g. institutional management, data provi resources user) and try to associate them with the related "biophysical component" listing each of them in the same line as that of the related component.
Rare/Threatened species			
Terrestrial Species	Ficus sycomorus. Pancratimum maritimum.	Depend on the sand duries' habitat, which is degrading on the national level, hence, became threatened species.	Farmers of Ras El Ain/TCNR agricultural zone (for F. sycomorus), Visitors/Treapassers of the Conservation zone where P. mantimum is found. Institutional management (TCNR management team). Ministry of Environment.
Marine species	Seagrasses Sea weeds. Macroalgae (Cystoseira sp., brown species)		Farmers of Ras El Ain/TCNR agricultural zone (for F. sycomorus), Visitor/Trespassers of the Conservation zone where P. maritmum is found. Institutional management (TCNR management team). Ministry of Environment.
Endemic species			
Terrestrial Species	Astragalus berytheus.	Endemic to the Lebanese and Palestinian seashores, with habitat	Institutional management (TCNR management team).
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		as sand dunes that are not found but in TCNR in Lebanon.	Ministry of Environment.

Fig.2.3: Example of *System Matrix* for the Tyro Coast Nature Reserve area (TCNR Partner)





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	Description	Key management issues	Key stakeholders
ncipali sistemi biofisici tieri e marini	Componenti principali che costituiscon o isistemi biofinici costieri e marini chiave (es. Climay sistemia idrologico e idrogeologico; tipi di vegetazione costera; zone umide mangrovie; costa rocciosa; dune e spiage praterie marine barriere coralline).	Problematiche gestione più importanti (as. Uzi e / o conflitti dolle risoreg problemi / microsce scologiche) e ercare di associarle alla relativa "componente biofisica" elencandole ciascuna nella stessa riga di quella della relativa componente.	Stakoholder più importanti (es. Gestione istituzionale, formitore di dati, utilizzatore di risorse) e cercare di associari alla relativa "componente biofisica" elencandoi ciascuno nella stessa riga di quella della relativa componente.
istema idrologico ed drogeologico			
eticolo idrografico Reticolo idrografico		Alluvioni mobili ed alluvioni fissate dalla vegetazione. Dune e sabbie esiche stabilizzate. Alluvioni mobili dottolose e sabbiose, dei letti fluviali: depositi di litrafe. Suoli e pressione da agricoltura intensiva presente nei luoghi.	Regione, Comuni, Ente gestore Riserva e ZSC. Consorto di bonifica Università Associazione Scientifica Biologi senza frontiere ARPACAL
Acque sotterranee	terranee Alluvioni mobili ed aluvion Dune e sablie eolidie sta di Itorale. Suoli e pressione da agrico		Regione, Comuni, Ente gestore Riserva e 25C. Consorto di bionifica Università Associazione Scientifica Biologi senza frontiere ARPACIL ARPACIA
tagni e zone umide costiere	Stagni e zone umide (presenza di stagni e lagune retrodunali). Acque di transizione. Vegetazione dei luoghi umidi. Vegetazione alo-igrofila	Pressione diretta da agricoltura intensiva presente nella zona oltre alla presenza del fenomeno dell'ingressione del cuneo salino.	Associazione Scientifica Biologi senza frontiere ARPACAL
etazone arborea ed arbustiva costera Boschi planiziari. Boschi ripariali. Cespugleti a tamend		Impatto da parte dell'agricoltura intensiva. Taglio abusivo. Pasciolo abusivo. Sostituzione con rimboschimenti di pini o eucalpti. Presenza di specie alloctone, diventate invasive	LIPU (Progetto dcogne) ARSAC Regione, Comuni Cooperative e/o produttori singoli Associazone Scientifac Biologi senza frontiere Ente gestore Riserva e ZSC Università
hia mediterranea Formazione vegetazionale arbustiva costituita tipicamente da specie sclerofile. Specificità del luogo: Specie spontanea, diffusa e utilizzata è liqueriza glabra.		Impatto da parte dell'agricoltura intensiva, inclusi agrumeti e risaie con uso dei prodotti chimici (Carte ARSAC da reperire). Carte sulla vulnerabiti dei suoli ai nitrati, uso di fitofarmad. Consumo di suolo (p.e. incend).	LIPU (Progetto dcogne) ARSAC Regione, Comuni Cooperative e/o produttori singoli Associazione Scientifica Biologi senza frontiere Ente gestore Riserva e ZSC Università
Fascia di vegetazione lungo la costa costituita da formazioni cespugliose discontinue. La gariga precede la macchia in successione, da mare verso entroterra.		Verificare con aspetti gestionali legati all'area protetta ed elencati nei documenti delle riserve naturali (controllo incrocato degli aspetti gestionali area libera vs area protetta). Impatti da attività turistiche.	ARSAC Regione, Comuni Cooperative e/o produttori singoli Ente gestore Riserva e ZSC Assonazione Scientifica Biologi senza frontiere Università
Fascia dunale e spiaggia Presenta di un importante sistema dunale con habitat di interesse comunitario.		Erosione costiera. Disturbi antoriori diretti (impatti da passaggio di mezzi o persone, distruzione di uova di tartarua -occasionale-, svifsuna, planta). Rifuti abbandonati s(o portati dalla correnti. Rimboadhinento con plante non autochne, con stravolgimento della naturalità. Durante inordazioni occasionali del fiume, riporto di rifuti nella spiaggia. Uso turistico della spiaggia, stabilmenti balneari	WWF (Progetto sulla tartaruga diamato Tartacare Calabria) Caretta Calabria Conservation Centro recuporo tartarughe di Brancaleone Associazione Scientifica Biologi senza frontere Università Ente gestore Riserva e ZSC ARSAC Regione, Comuni Statone omitologica calabrese ARPACAL
Sistema pelagico Banchi profindi (controllare) Controllare mammferi pasagogi presenza Stenelle e Tursiopi Squali (pesce martello, mako, verdesca, grigio, e altre possibilmente)		Diretti: navigazione, pesca, subacquel (rumero e comportamento), Indiretti: cambiamento cimatico, come variazioni temperatura delle acque. Progetto di estrazione di gas, in attesa delle autorizzazioni.	Regione Operatori el contesto del turismo subacqueo. Associazioni pescatori. Lega navale Statone zologica A. Dohrn di Amendolara Capitaneria di porto Università



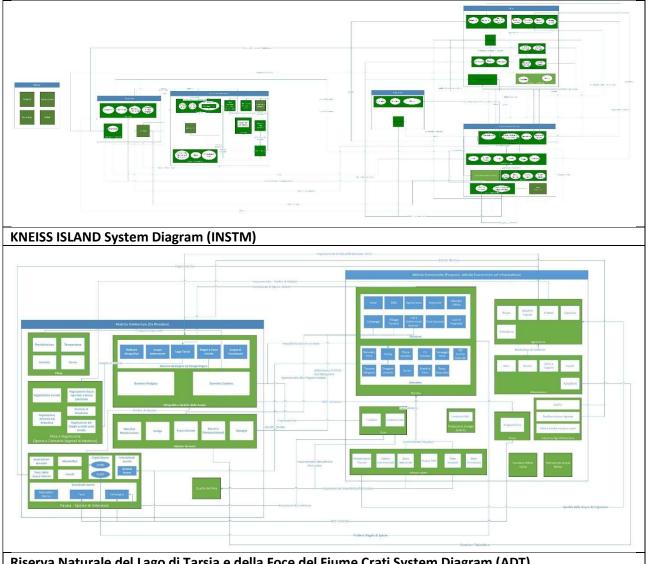


1.2 - Ecosystem Context Analysis – System Diagrams.

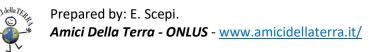
The following step accomplished of the Ecosystem Context Analysis was the of the transposition of the described System Matrices into System Diagrams were all the components and sub-components defined in each of the matrices are drawn in a system diagram as box items. Once all components and sub components of the matrix have been drawn in the system diagram, 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.

Also for this action, the PROGES ISP60 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.

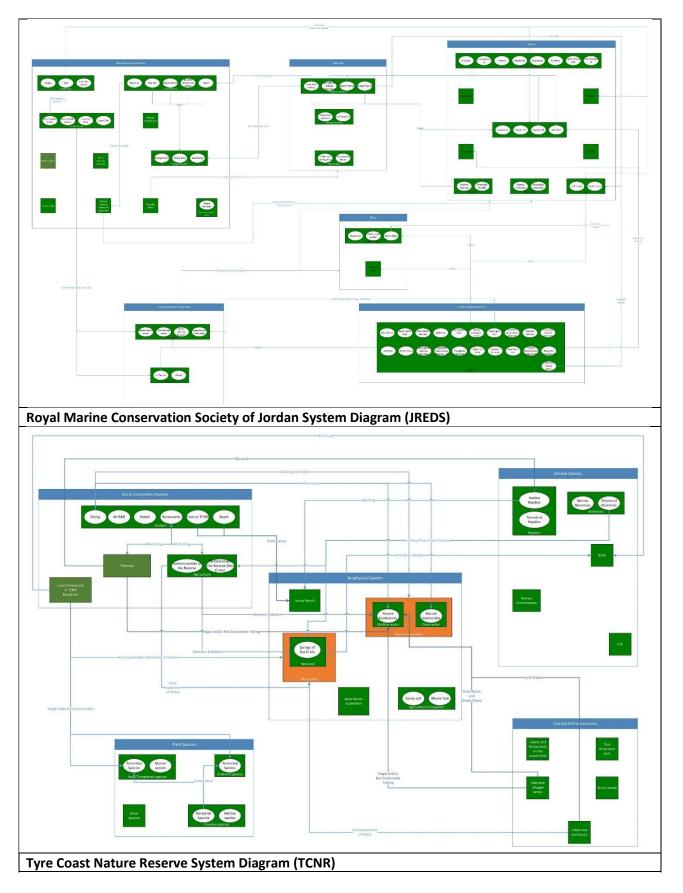
This new diagrammatic representation of the same information can help to identify possible inconsistencies and/or incompleteness of the model, either in the definition of components and sub-components in their interconnections. The four System Diagrams are reported table here below.



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











Integrating the above-mentioned *Thematic Scoping and Key-Stakeholders Mapping Reports* and the *System Matrices* it was possible to realise the four *System Boxes-and-Arrows diagrams* constituting the backbone of the EB-ICZM reference models (as described in Deliverable WP3.1, Section 2.2.2). The four Applications developed contain data linked to the various components drawn. Remarkable milestone considering that every single activity described was implemented remotely.

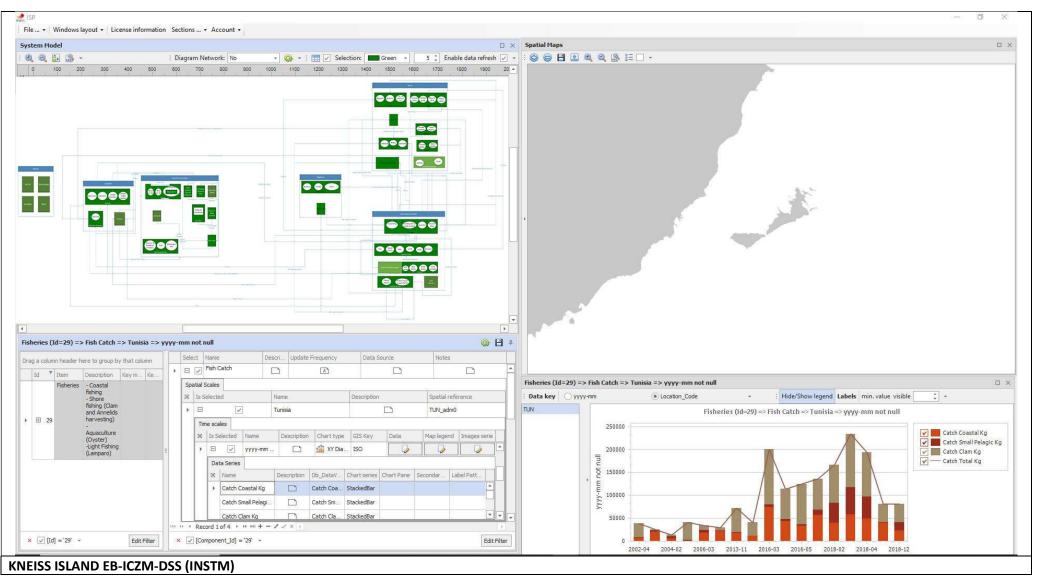
1.4 - Deliverables produced.

The ISP60 software package can be downloaded and installed via the Microsoft ClickOnce software distribution technology; credentials for downloading, installing and accessing the EB-ICZM-DSS Applications have been given to the four Partner's Focal Point. 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 so as to obtain any software update the PROGES will release in the future.

The current status of any individual EB-ICZM-DSS projects developed is shown here below.

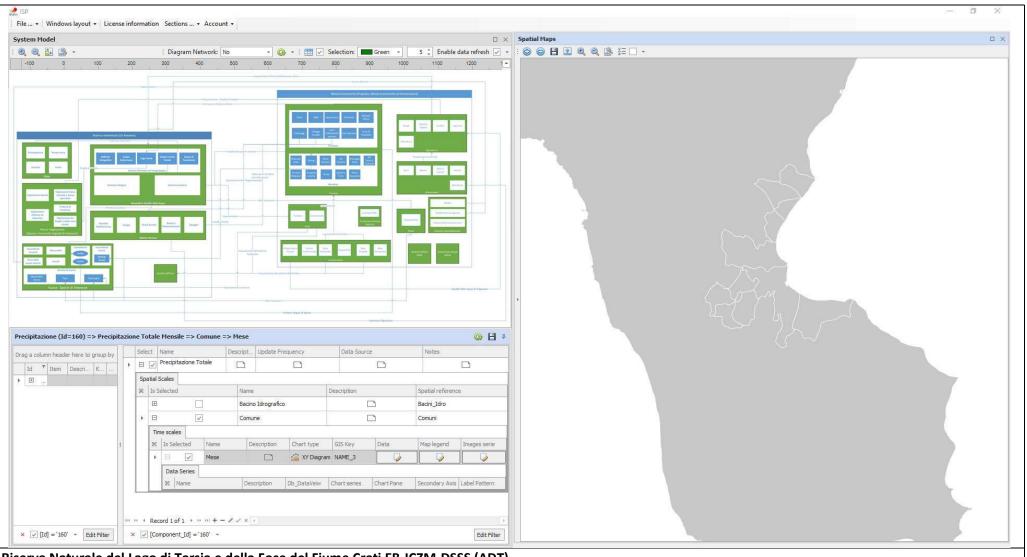








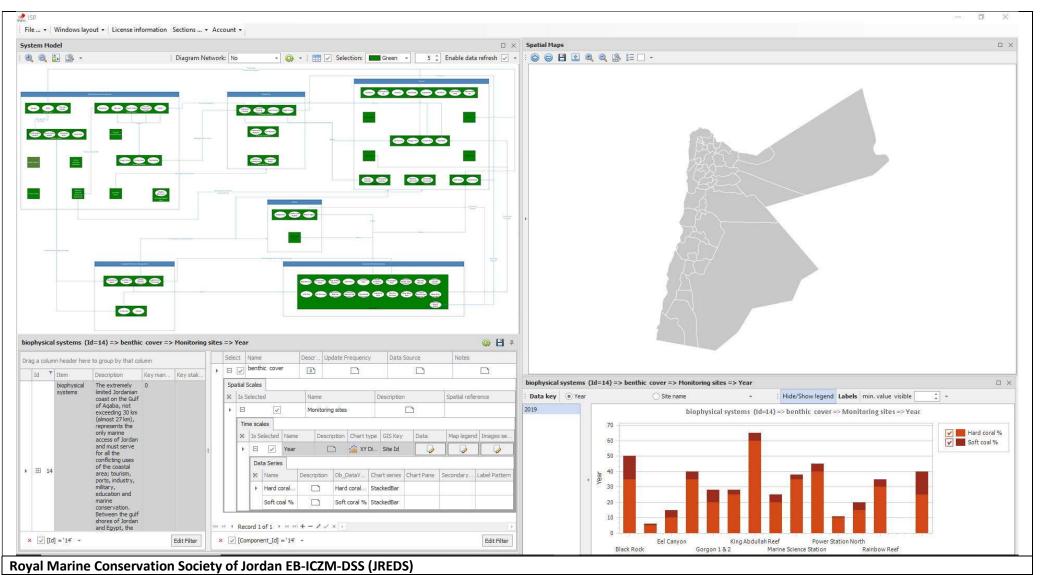




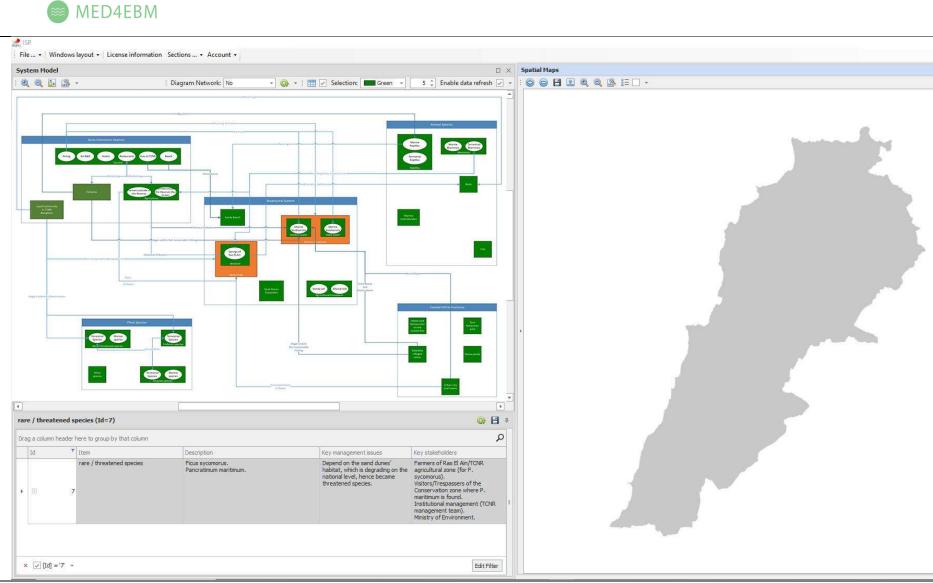
Riserva Naturale del Lago di Tarsia e della Foce del Fiume Crati EB-ICZM-DSSS (ADT)

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

