

Item	Description	Key management issues	Key stakeholders
<i>biophysical systems</i>	<p>=> <i>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, cayos).</i></p> <p>=> <i>Use one line for each of the components (and add as many lines as needed).</i></p>	<p>=> <i>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.</i></p> <p>=> <i>Use one bullet (=) for each of the management issues (and add as many lines as needed).</i></p>	<p>=> <i>Identify the most important stakeholders (e.g. institutional management, data provider, resources user) 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.</i></p> <p>=> <i>Use one bullet (=) for each of the stakeholders (and add as many lines as needed).</i></p>
wetland	Wetland is designated as Ramsar site.	Presence of an invasive plant species "Heterotheca subaxillaris", spreading at the expense of the natural wetland flora, and threatening the ecosystem's well being.	Institutional management (TCNR management team). Scientific expertise (flora experts).
Springs of Ras El Ain	Springs are located in n 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 salt and fresh waters.	A. Pollution with agrochemicals B. Possible leakage of formal dumpsite's leachates to the groundwater sources of Ras El Ain.	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 zone's activities.	Institutional management (TCNR management team). Municipality of Tyre. Ministry of Environment. International organizations involved in endangered sea turtles' conservation (SPA RAC; IUCN; MedPAN).
sandy beach	The most beautiful and cleanest 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 50 permitted kiosks (temporary hut-restaurants) by Ministry of Environment to both sides (northern and southern sides of the beach uncovered by the kiosks' services) by independent tourists who don't abide by the eco-rules imposed on the owners of the kiosks exploiting the beach during the summer.	Institutional management (TCNR management team). Municipality of Tyre. Ministry of Environment.
<i>plant species</i>	<p>=> <i>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-communities/habitat may be already included under Vegetation-Types).</i></p> <p>=> <i>Use one line for each of the group (and add as many lines as needed).</i></p>	<p>=> <i>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.</i></p> <p>=> <i>Use one line for each of the management issues (and add as many lines as needed).</i></p>	<p>=> <i>Identify the most important stakeholders (e.g. institutional management, data provider, resources user) 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.</i></p> <p>=> <i>Use one line for each of the stakeholders (and add as many lines as needed).</i></p>
rare / threatened species	Ficus sycomorus. Pancreatimum maritimum.	Depend on the sand dunes' habitat, which is degrading on the national level, hence became threatened species.	Farmers of Ras El Ain/TCNR agricultural zone (for F. sycomorus). Visitors/Trespassers of the Conservation zone where P. maritimum is found. Institutional management (TCNR management team). Ministry of Environment.
endemic species	Astragalus berytheus.	Endemic to the Lebanese and Palestinian sea shores, with habitat as sand dunes that aren't found but in TCNR in Lebanon.	Institutional management (TCNR management team). Ministry of Environment.
invasive species	Heterotheca subaxillaris.	Wind-transported seeds from Palestine. Well established in the sand dunes of TCNR's Conservation zone.	Institutional management (TCNR management team). Scientific/Academic expertise (flora experts).

2021

Med4EBM Execution of the first Stakeholders' Workshop/Webinar (with the scientific community to collect first set of data about TCNR's ecosystems) on February 26th.

Execution of 2nd and 3rd sessions with Local Stakeholders in presence on March 19th (farmers, fishermen, tourism sector operators).

The second Stakeholders Workshop/Webinar with the scientific community is scheduled on the 23rd of March, to build the matrices.

The **economic crisis** accompanied with demonstrations, road closures, gas unavailability for mobility, complicated and hindered in some cases the execution of some planned activities, or reaching our premises to interact with our stakeholders.

Organizing 3rd and 4th stakeholders workshops (with the scientific community) to work on the diagrams on the tentative dates of 8th and 9th of April. Executing the first thematic event.

Oil spill that hit the southern Lebanese shores (several waves: Feb. 22nd, March 12th and 20th), including those of the PA Tyre Coast Nature Reserve



OIL SPILL CLEAN UP

ISRAELI ENVIRONMENTAL DISASTER REACHES LEBANON



System Model

Diagram Network: No Selection: Green Enable data refresh

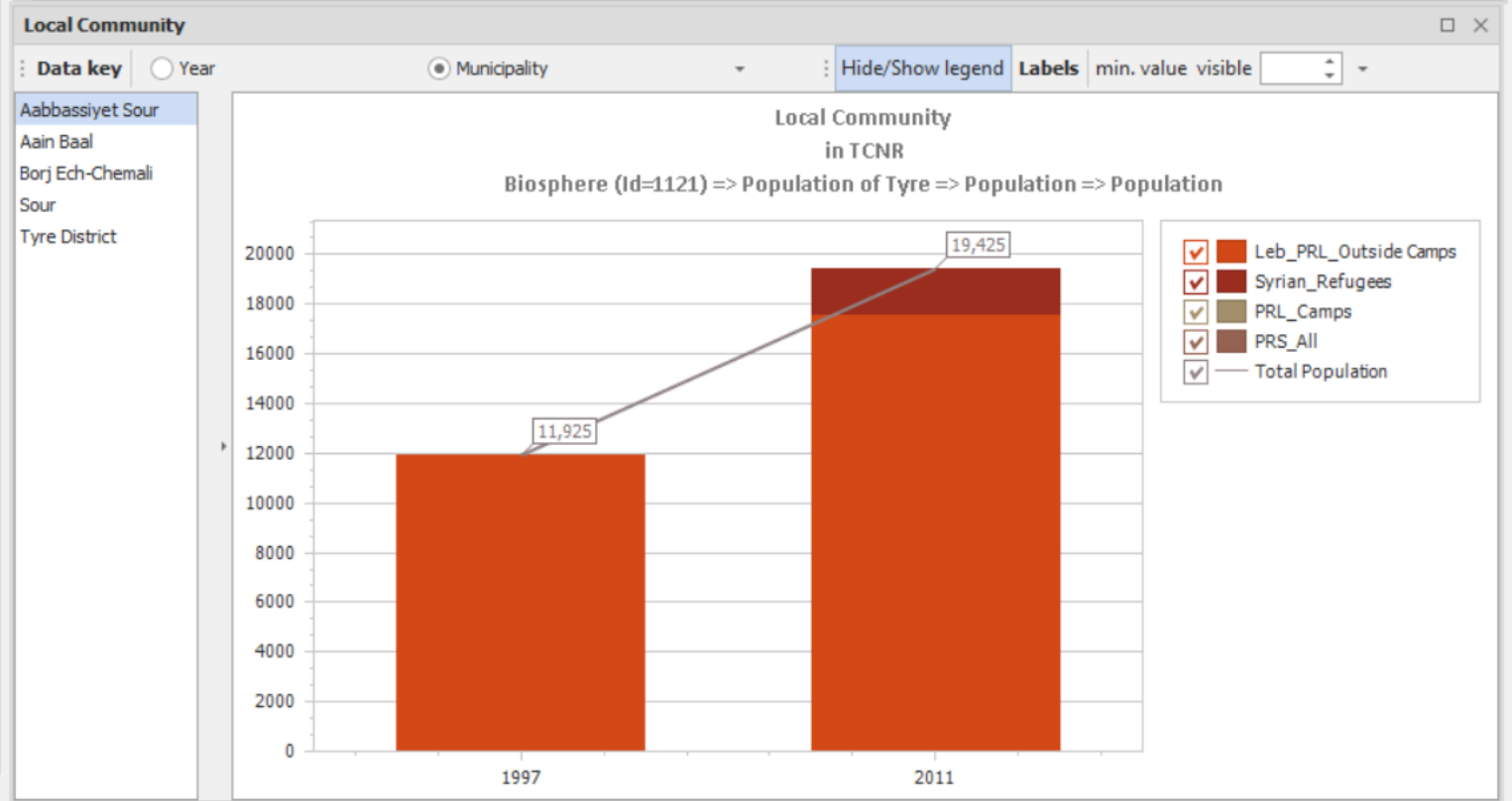
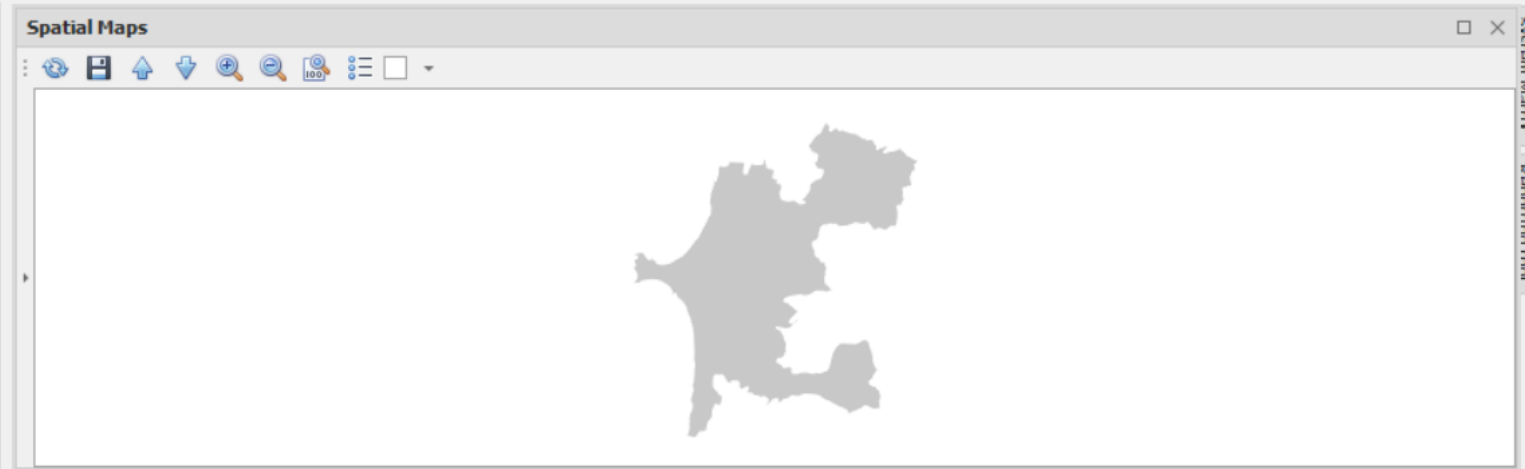
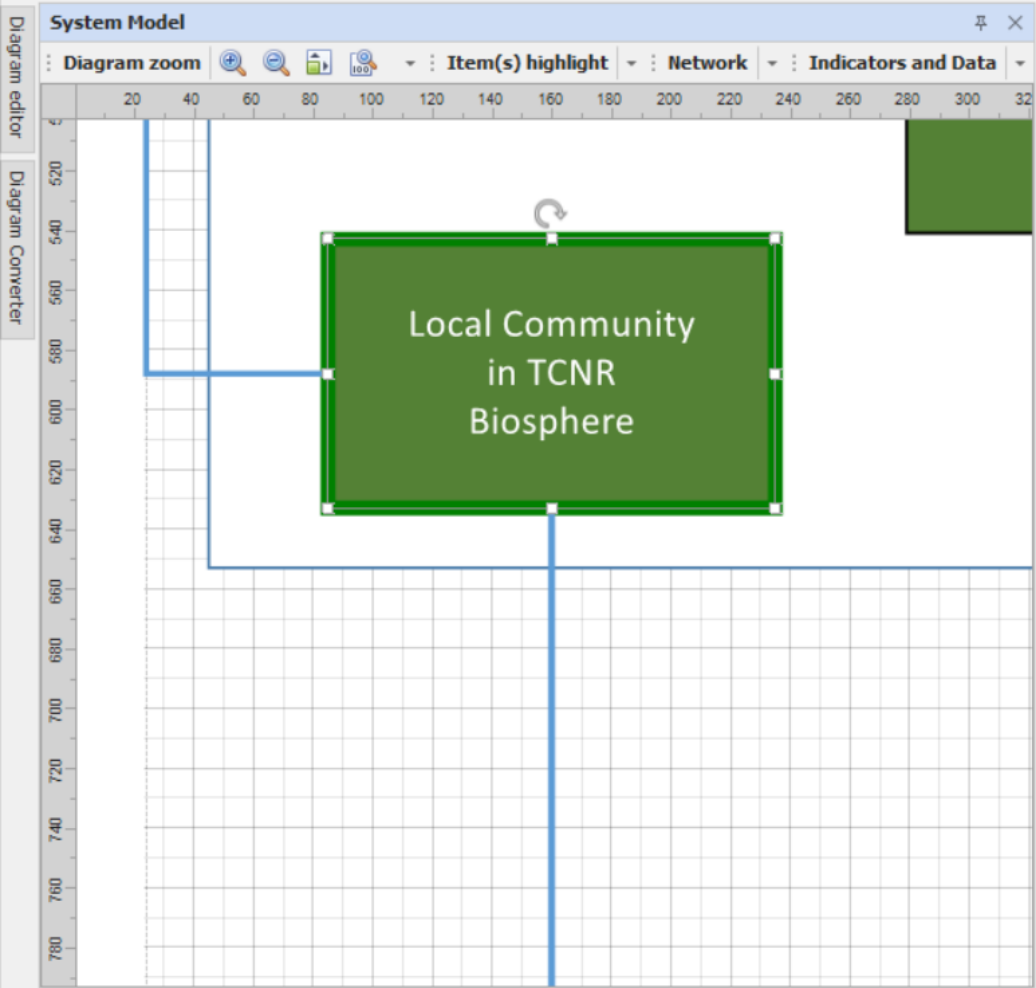
Spatial Maps

rare / threatened species (Id=7)

Drag a column header here to group by that column

Id	Item	Description	Key management issues	Key stakeholders
7	rare / threatened species	<i>Ficus sycamorus</i> , <i>Panicotium maritimum</i> .	Depend on the sand dunes' habitat, which is degrading on the national level, hence became threatened species.	Farmers of Ras El Ain/TCNR agricultural zone (for <i>F. sycamorus</i>), Visitors/Trespassers of the Conservation zone where <i>P. maritimum</i> is found. Institutional management (TCNR management team), Ministry of Environment.

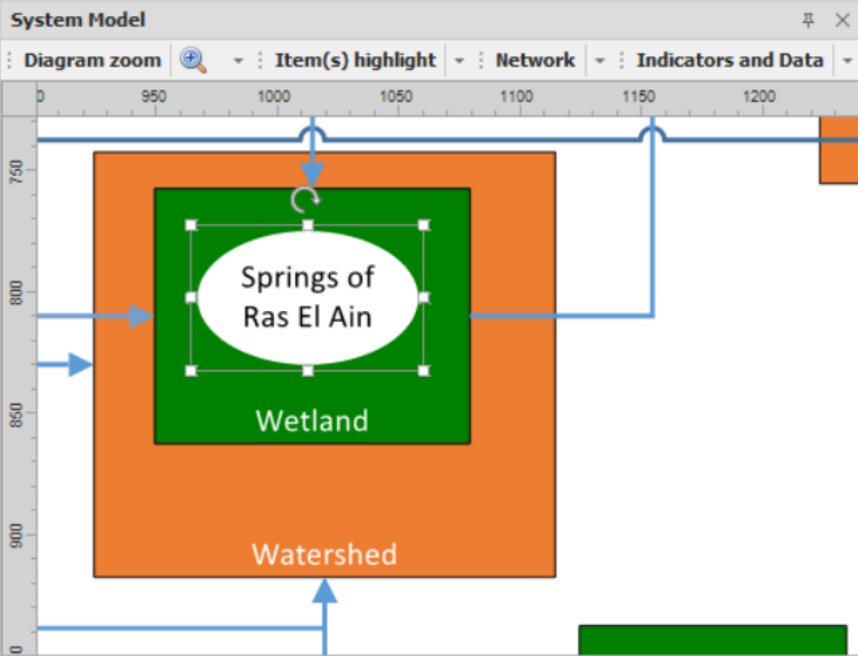
✕ [Id] = 7 Edit Filter



Local Community

Select	Name	Descrip...	Update Frequency	Data Source	Notes
<input type="checkbox"/>	Sour Pop	populatio n of Tyre		UN	
<input checked="" type="checkbox"/>	Population of Tyre				

Record 2 of 2

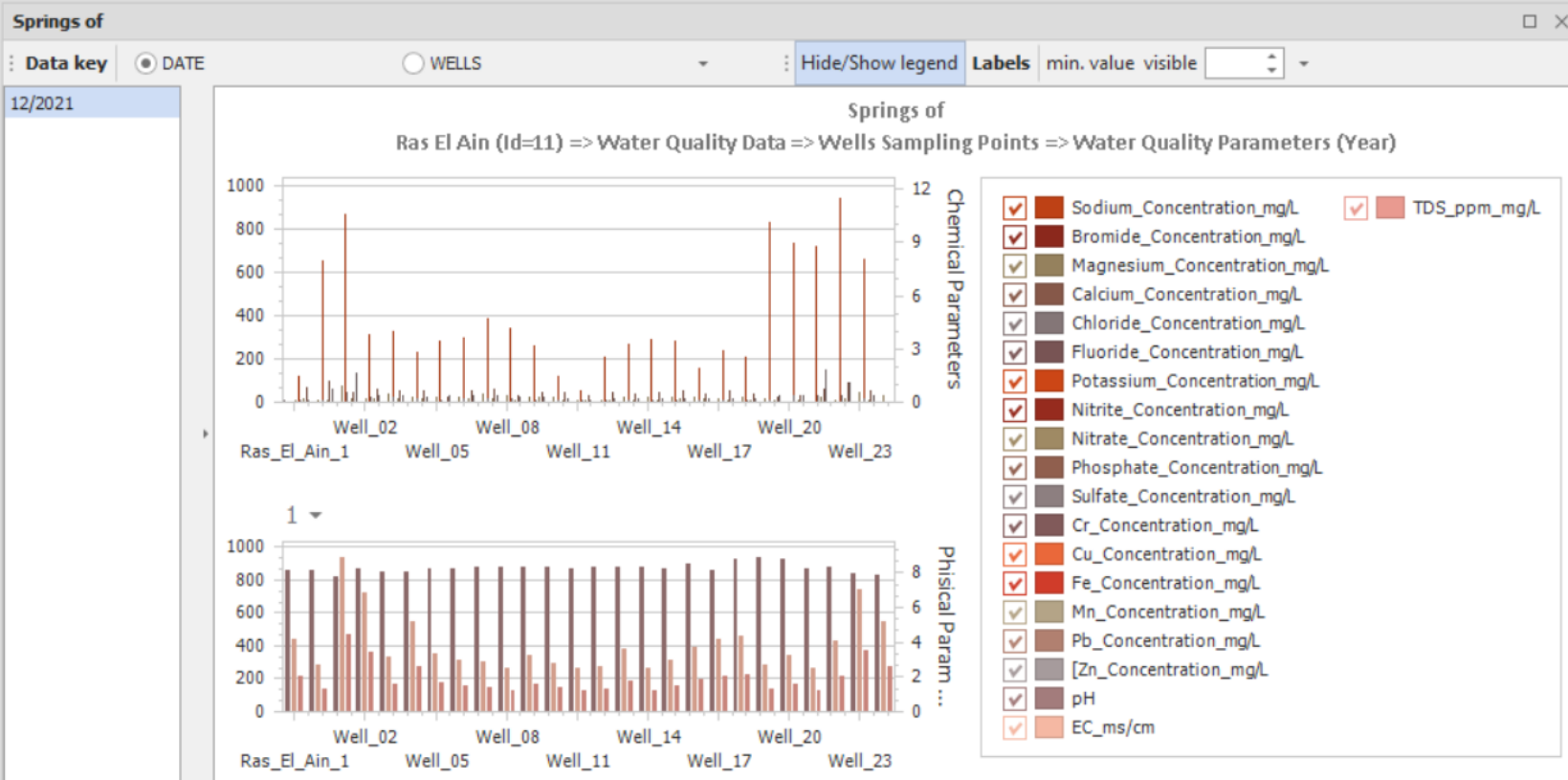
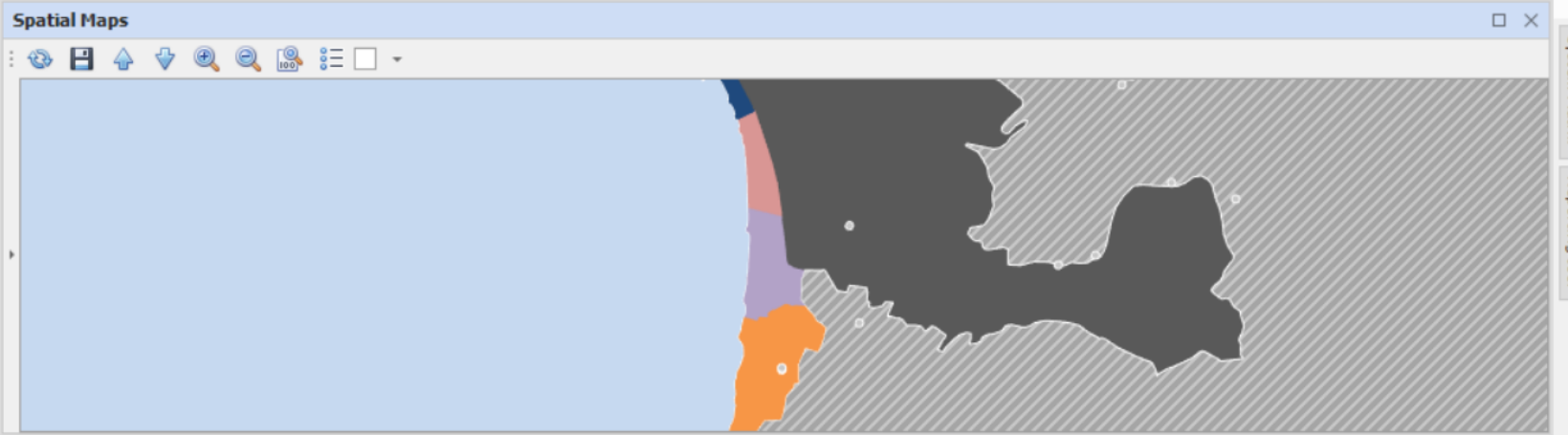


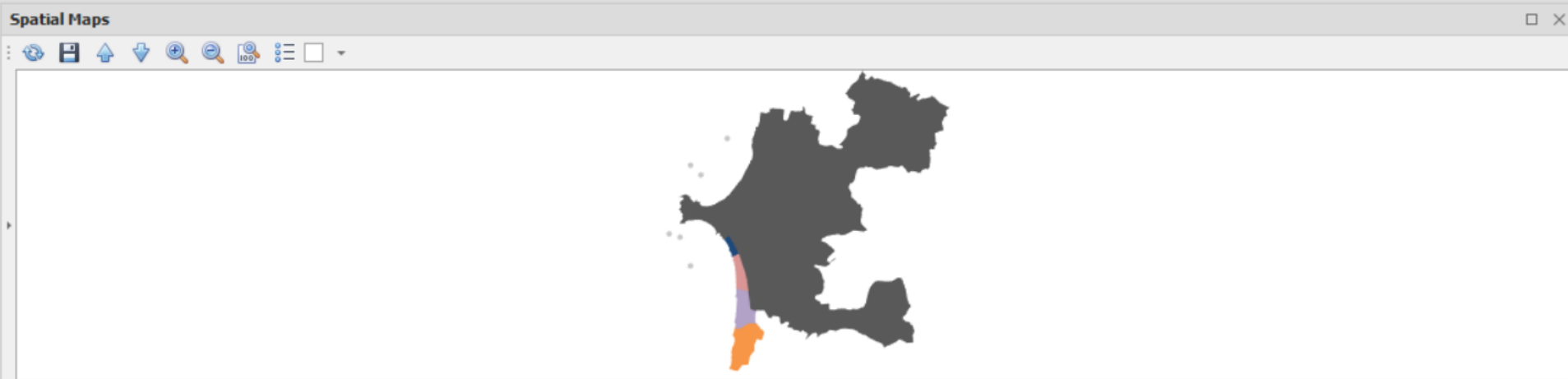
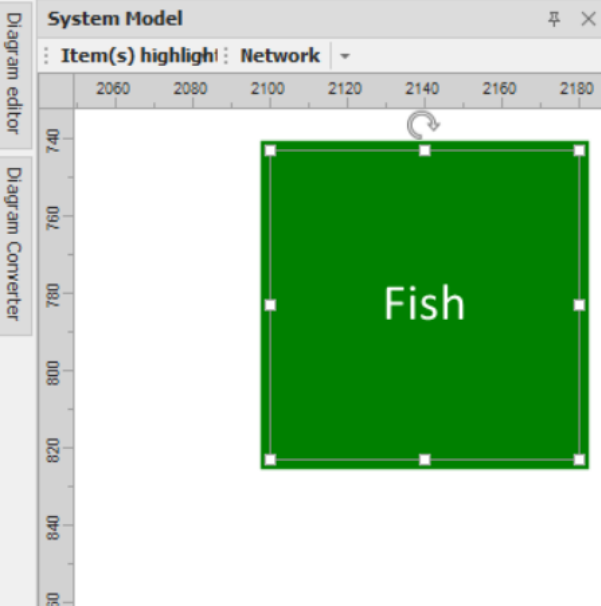
Springs of

Components

Select	Name	Desc...	Update Frequency	Data Source	N...
<input checked="" type="checkbox"/>	Water Quality Data	Physical and Chemical Parameters	Yearly	TCNR	
<input type="checkbox"/>	Sodium Concentration	Na+	Yearly	TCNR	
<input type="checkbox"/>	Calcium Concentration	Ca+	Yearly	TCNR	
<input type="checkbox"/>	Magnesium Concentration	Mg+	Yearly	TCNR	
<input type="checkbox"/>	Potassium Concentration	K+	Yearly	TCNR	
<input type="checkbox"/>	Nitrite Concentration	NO2-	Yearly	TCNR	
<input type="checkbox"/>	Nitrate	NO3-	Yearly	TCNR	

Record 1 of 18

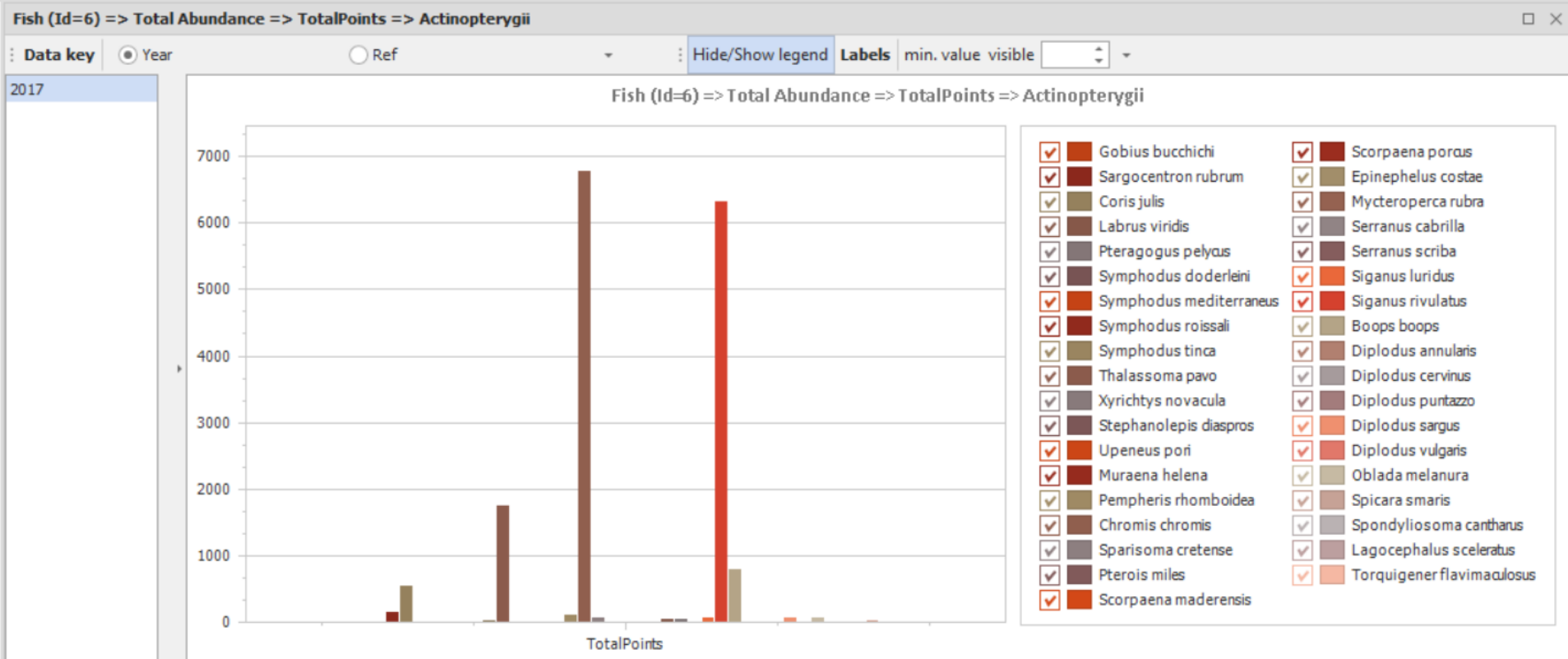




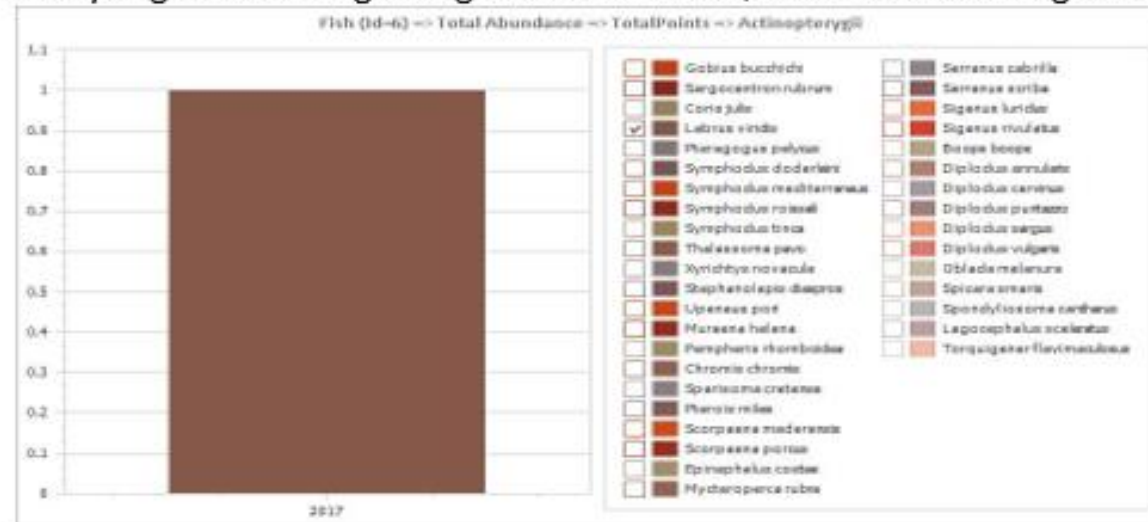
Fish (Id=6) => To...

Select	Name	Description	Dat...
<input checked="" type="checkbox"/>	Total Abundance	From report IUCN published 2017	IUCN

Record 5 of 5



Analysing the data regarding total abundance, the first interesting outcome is:



Labrus viridis is a vulnerable species (IUCN red list)
 Inside the IUCN red list [website](#) the species is not reported.

RESULTS (2) ? Download Save search

ANIMALIA – ACTINOPTERYGII

Green Wrasse

Labrus viridis

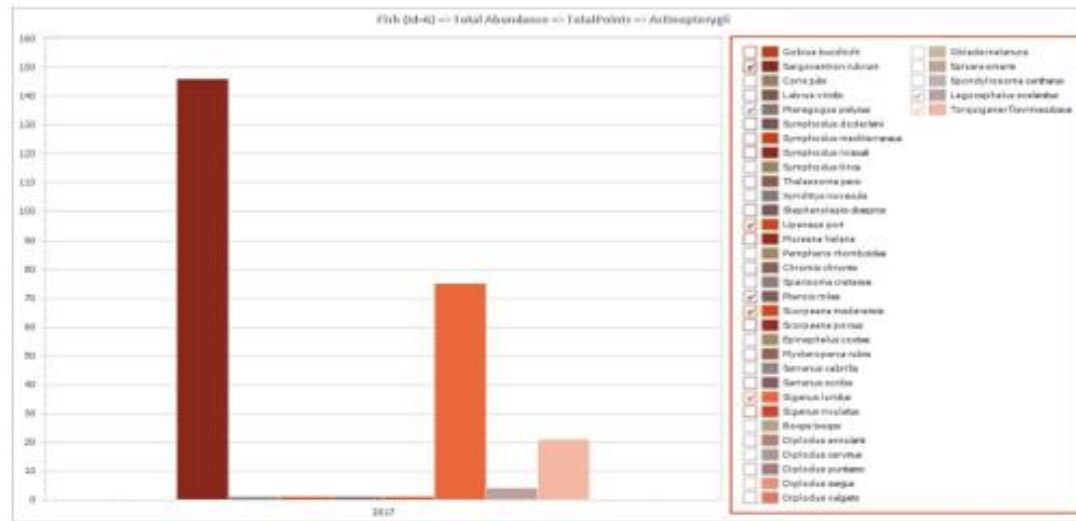
Decreasing <VU>

View on map

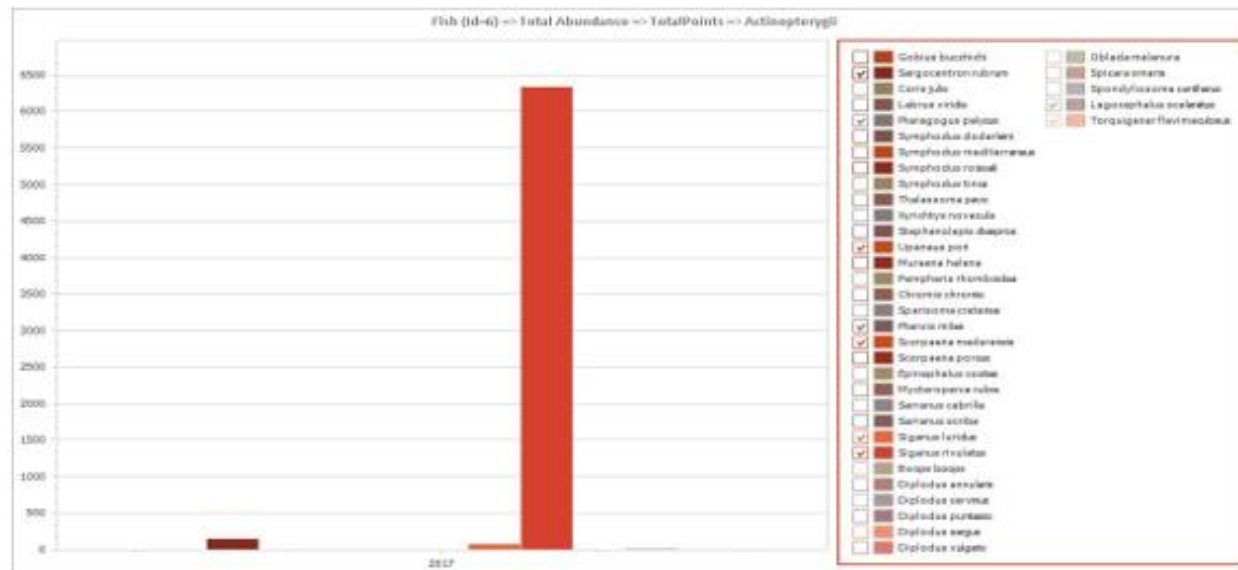
ANIMALIA – ACTINOPTERYGII

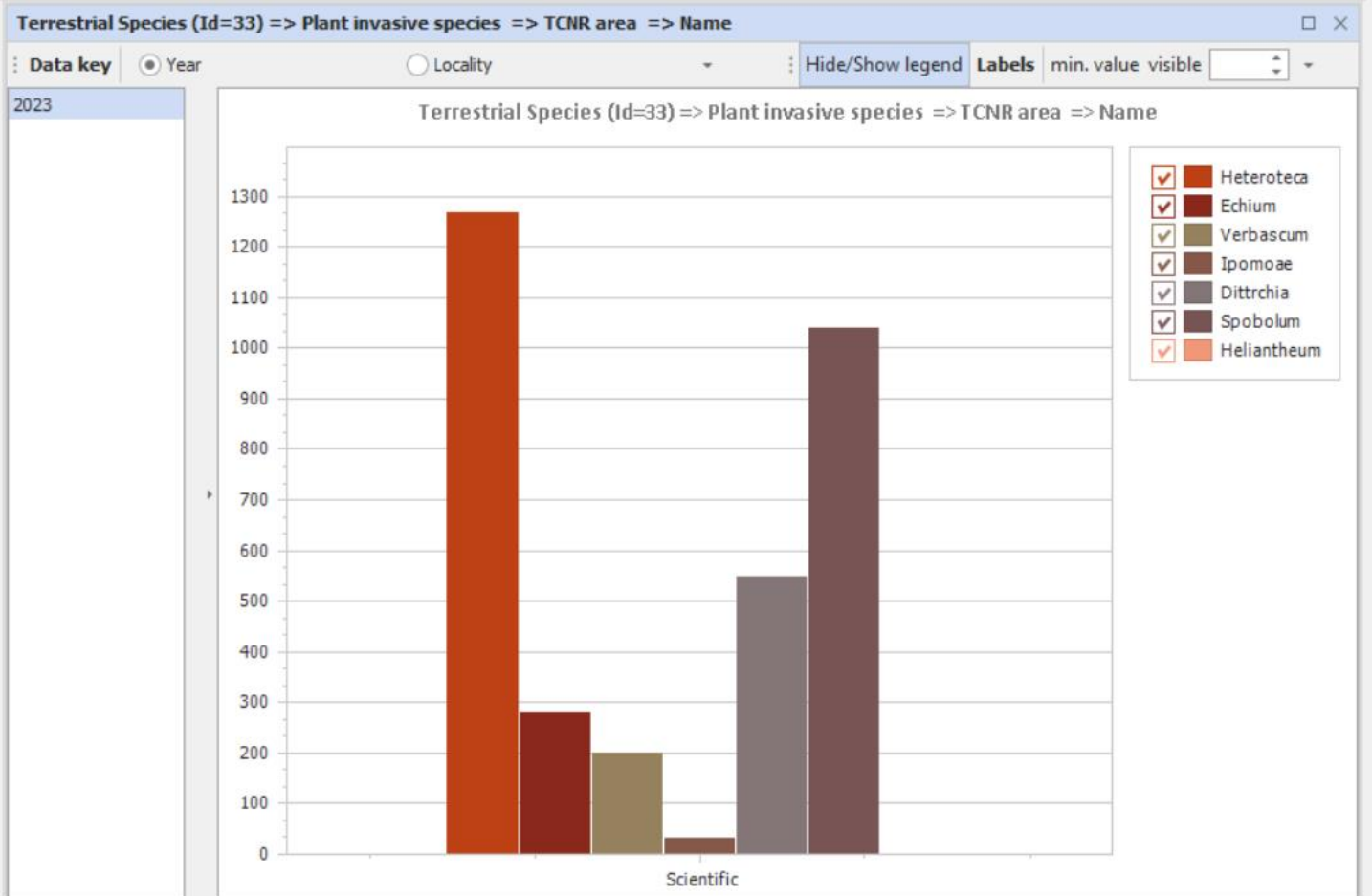
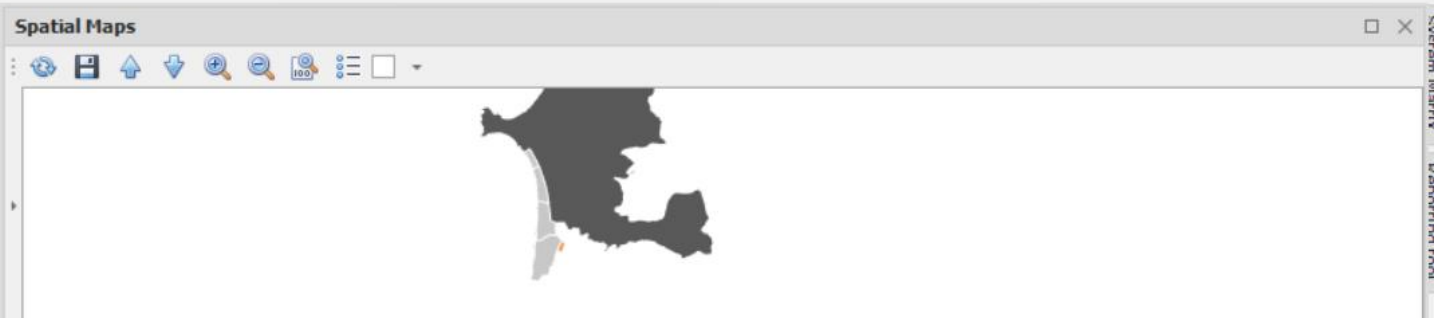
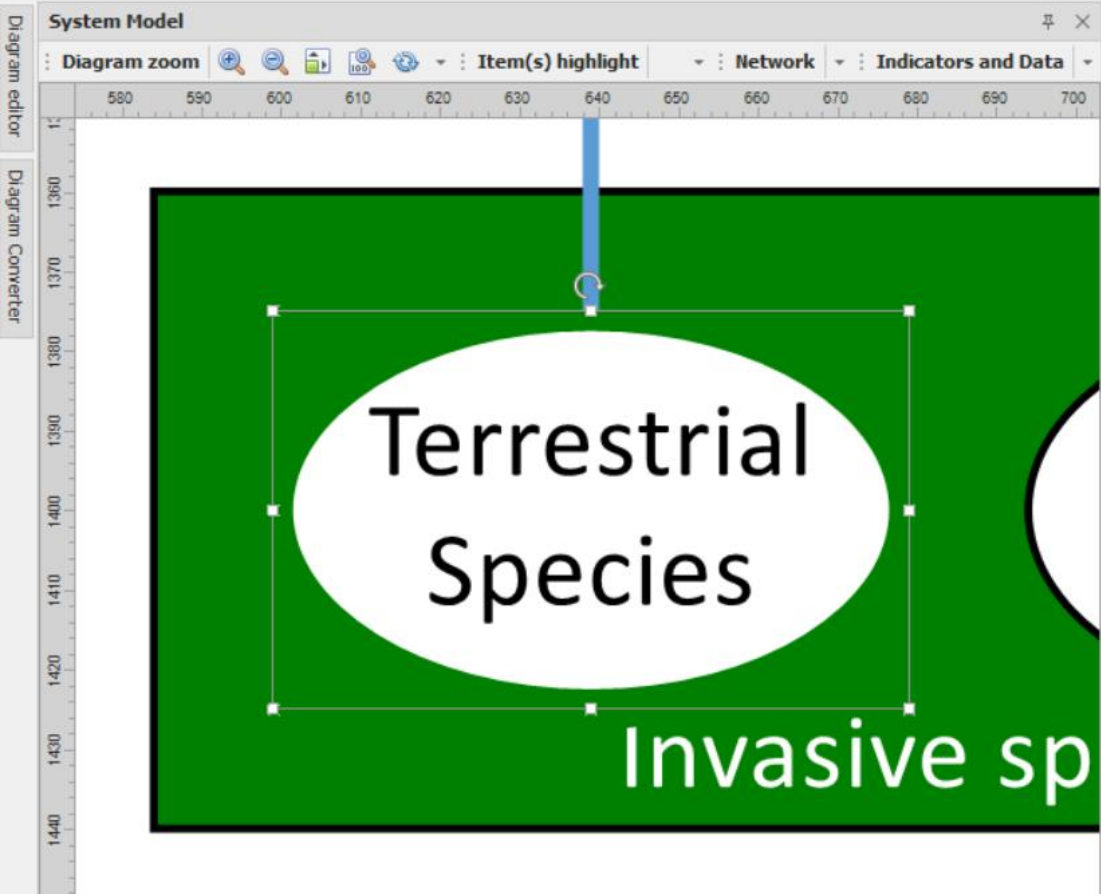
Thalassoma lunare

Fish: alien species recorded around Tyre are, 2017



Graph including *Siganus rivulatus*:



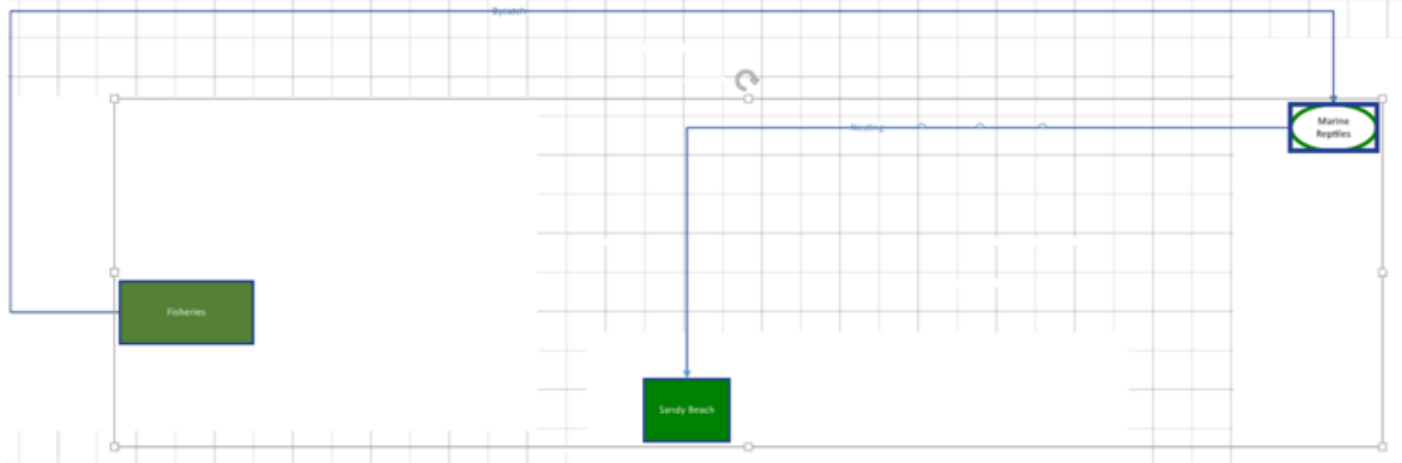


Terrestrial Species (Id=33) => Plant invasive species => TCNR area ...

Select	Name	Description	Upd...	Data Source	Notes
<input checked="" type="checkbox"/>	Plant invasive species	Field survey for plant invasive species		Field survey has done by Lebanese univeristy student under supervision of TCNR project Manager	

Record 1 of 2

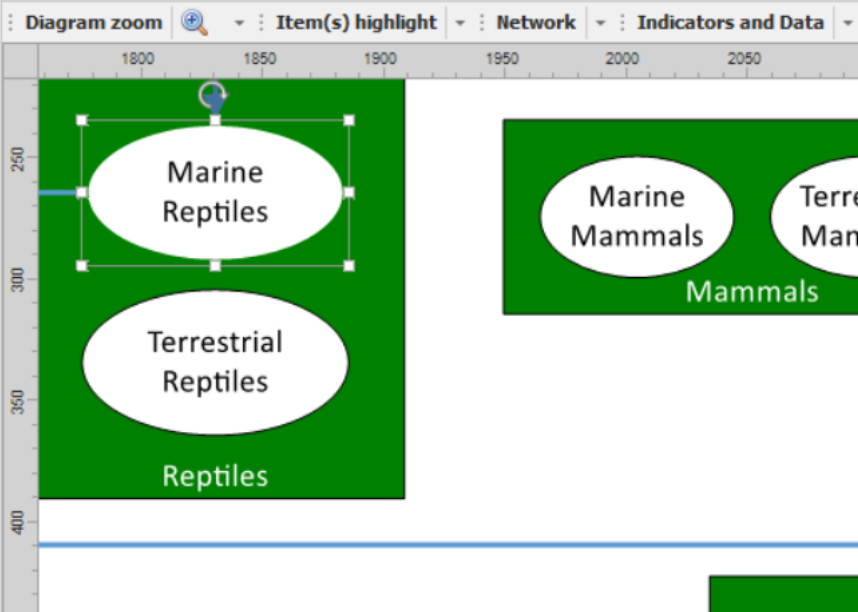
ASSESSMENT OF CONSERVATION AND MANAGEMENT OF THE NATURAL RESOURCES AND ECOSYSTEMS IN THE COASTAL-MARINE AREA OF TYRE COAST NATURE RESERVE, LEBANON



System cause-effect analysis: *Animal and plant species, biophysical system.*

N.	Component		Direct Interaction with other components		Management options/Governance Protocols
	Name	Quantitative analysis	Related Component	Component quantitative analysis Description of the interaction between components	
9	[Marine Reptiles (Id=1095)]	It is inside the Container called [Animal Species (Id=10)], [Reptiles (Id=5)] Component, in which there are two subcomponents: marine and terrestrial reptiles. <i>There are records of species of marine turtles: <u>Caretta caretta</u> and <u>Chelonia mydas</u>. There is an ongoing project, called "Conservation of marine turtles in the <u>Med sea</u>". It protects the nests on the</i>	[Sandy Beach (Id=13)]	It is a component of the "Biophysical System". <i>Check the availability of land cover map in the ISP, the surface of this habitat and related relevant information, such as protection regime, presence of facilities, fences, and other.</i> The turtles are usually nesting in the protected area of the beach, called "scientific zone" inside TCNR.	Synergies with all the projects and initiatives regarding this dynamic, with actions like management of lights along the beach.

System Model



Marine

Select	Name	Descr...	Update Frequency	Data Source	N...
<input type="checkbox"/>	Nesting Reptile	Turtle Nesting Record	Yearly	TCNR	
<input checked="" type="checkbox"/>	Caretta caretta	Unhatched and Hatched Eggs	Yearly	TCNR	
<input type="checkbox"/>	Chelonia mydas	Hatched Eggs	Yearly	TCNR	

Spatial Maps



Marine

Data key: Year Site

Hide/Show legend Labels min. value visible

2020
2021
2022

