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CROSS-BORDER COOPERATION
IN THE MEDITERRANEAN



**MARE NOSTRUM PROJECT: Bridging the Legal-
Institutional Gap in Mediterranean Coastline Management**

PPGIS Report

PPGIS TRAINING AND PRACTICE IN THE FRAMEWORK OF THE MARE NOSTRUM PROJECT

Mare Nostrum Project ENPI CBC MSB Grant Agreement I-A/1.3/093 MARE NOSTRUM

marenostrumproject.eu info@marenostrumproject.eu +972-48294018 +972-54-4563384

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CHAPTER 1 Introduction

PPGIS – Public Participation Geographic Information Systems – is an important tool which facilitates participation through various mapping techniques. It may use a wide variety of information technology platforms.

PPGIS was used by the Mare Nostrum project partner countries to facilitate an exchange of information between stakeholders (generally, the public and decision-makers) on coastal zone management issues.

Four Mare Nostrum partners implemented PPGIS processes in coordination as a follow-on to the findings from their local case studies (as reported in the Mare Nostrum Second Report). Those partners were:

- IRMCO, Malta
- Municipality of Haifa, Israel
- FEPORTS, Valencia, Spain
- City of Kavala, Greece

In this report, we provide a summary of the training provided by IRMCo, the leaders of the Mare Nostrum PPGIS program, followed by detailed accounts of the design and application of the PPGIS instruments developed by each of the above four partners.

CHAPTER 2 PPGIS Training

PPGIS training for the Mare Nostrum partners took place over two meetings:

- In February 2014 in Alexandroupoulos, Greece, partners were given an introduction to PPGIS
- In November 2014 in Malta, IRMCo conducted a full training workshop in PPGIS for all partners

2.1 Summary of PPGIS introduction – February 2014

The PPGIS introductory session covered the following topics:

2.1.1 What is PPGIS?

Public participatory geographic information system. A visualization tool that taps local knowledge; a facilitator that encourages people to think spatially. Encourages people to think about how they would like their coastal zone to look. An opportunity to share local knowledge and discuss prevalent issues.

2.1.2 Why are we doing it?

Having researched the implementation gaps in our case study areas, the next step is how to address those from the perspective of the local communities. This process can give people a sense of ownership and responsibility, build trust and enable social learning. We can then bring these insights to the attention of decision-makers.

2.1.3 What do we need to do?

Ensure appropriate maps & varied perspective of people participating in activities (create a PPGIS community database). Mapping tasks: Identify a key issue for PPGIS activities, decide which maps to use, assemble maps, consider additional maps, construct new maps. Identify community members to take part: advertise the upcoming PPGIS process.

2.1.4 Aims for partners

Assemble a GIS database that contains existing maps and new maps (if needed). Perception maps, paper and digital (e.g. Google map), will be the outcome of PPGIS workshops.

2.1.5 What's ahead?

The training workshop in Malta will delve further into how to prepare for PPGIS events.

2.2 Summary of full training workshop – November 2014

In the Mare Nostrum PPGIS training workshop, which took place in Malta in November 2014, IRMCo covered the following topics and activities:

2.2.1 Introduction to PPGIS

What is PPGIS?

- A visualization tool that taps local knowledge that cannot be tapped otherwise, through dialogue and perception mapping
- Encourages local communities to think spatially and to create local perception maps of the desired future of their coastal zone
- An opportunity to discuss prevalent issues
- Sharing stories & traditional knowledge

2.2.2 Outline of the PPGIS process

The PPGIS training kit was adapted from Giacomo Rambaldi's "Training Kit on Spatial participatory spatial information management and communication".

PPGIS steps:

- Setup PPGIS community
- Collect maps and PPGIS data
- Construct an interactive web GIS

2.2.3 Description of the PPGIS pilot process undertaken in Malta

Topic: "Safeguarding and Protecting open spaces in and around the Grand Harbour"

Goal: To draw a blue & green walk: a coastal trail connecting places of cultural and natural heritage

Result: "Local Communities' Charter for liveable cultural environments in our Grand Harbour"

2.2.4 Workshop

During the practical workshop, the partners were divided into three groups and each group was given a scenario. The scenarios were:

- Coastal monitoring
- Land and resource use conflicts
- Public access to coast

Each group had to discuss the scenario, decide what was to be mapped and then develop a "symbolology" – symbols which represent different aspect of the scenario – for their map. Each group presented their discussions to all workshop participants.

Finally, all participants were given the chance to try the tools developed by the Malta team – particularly, their Google My Maps platform (see Malta chapter below).

Having had the chance to understand the Maltese pilot PPGIS program, the Partners from Haifa, Valencia and Kavala continued to develop their own tailored PPGIS programs. Full details of the PPGIS processes undertaken in each location are provided below.

PPGIS Practice Summaries by Location

CHAPTER 3 PPGIS Practice in Malta

3.1 Topic chosen for PPGIS Practice

The selected topic, i.e. “Safeguarding and protecting the remaining Open Spaces in and around the Grand Harbour”, brings a follow-up to the Local Communities’ Charter that was launched in September 2014.

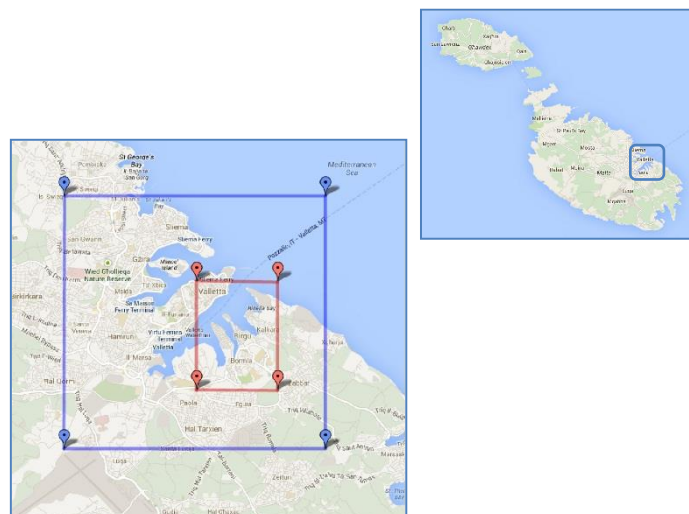
The Local Communities’ Charter for Liveable Cultural Landscapes in Malta’s Grand Harbour, “A Place for Our Children”, developed organically through a series of think-tank seminars, organized by IRMCo’s team in 2014, bringing together the local communities of the Grand Harbour area in Malta, through the participation of local decision-makers, residents, NGO representatives, business owners, academics and local artists.¹

Particularly suited to the scope and objectives of PPGIS, was the idea that emerged from these seminars to crowdsource Places of Interest (places of cultural, historic, archaeological, ecological and/or religious importance) and at the same invite the drawing of possible Eco-Heritage trails connecting these places, with the goal to present the Blue & Green Open Spaces of the Grand Harbour as an area of local recreational and touristic value.

The dedicated website, www.grandharbourcharter.net, enables the general public to read and sign the Charter, to visualise the Open Spaces of the Grand Harbour through a set of dedicated web maps, and gives the opportunity to crowdsource local knowledge of places of cultural and ecological value through online drawing of Eco-Heritage trails.

3.2 Case study sites used for the PPGIS Practice (Boundaries for the GIS layers)

The figure below shows the spatial extent of the Grand Harbour, chosen as case study in Malta.



Demarcation of Malta case study ('inner' Grand Harbour shown by red lines)

¹ For more details, see QO6.3 part 2_Development of a Charter

As described in more detail below, the mapping of the Open Spaces started with the ‘inner’ Grand Harbour in preparation for the PPGIS Training Event organized by IRMCo for all partners in Mare Nostrum in November 2014.²

3.3 GIS Layers

In the absence of readily available maps of the Open Spaces, it was opted to organize a field survey and to collect such information as required to characterize the Open Spaces. The tables below show respectively the typology, starting from the three broad categories and their subdivision into ‘land classes’, and the various attribute information that was used to characterize the Open Spaces.

Agricultural areas	Natural Open Spaces	Man-made Open Spaces
Cultivated fields	Wooded area	Landscaped garden
Orchard	Shrubland	Roadside landscaping
	Rocky beach	Promenade
	Sandy beach	Sports facility
		Playground
		Paved area
		Car park
		Cemetery
		Boat yard
		Water body

Typology of the Open Spaces

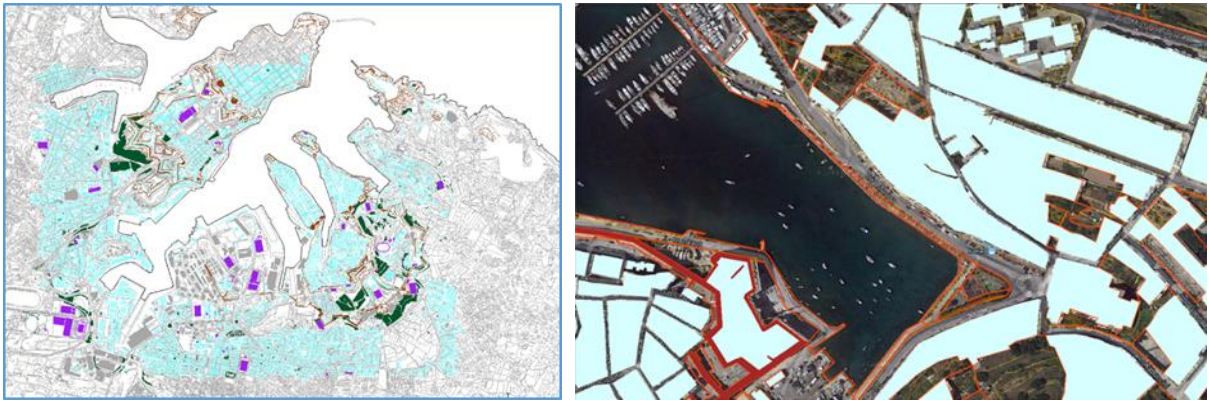
Degree of disturbance (a)	Level of maintenance (b)	Level of Access	Means of access	Tree Canopy
Generally undisturbed	Regularly maintained	Public access	On foot	0% (sealed)
Moderately disturbed	Not regularly maintained	Restricted hours	On foot and by bicycle	0% (natural)
Heavily disturbed	Neglected	Members only	Motorized vehicles	< 5% (scant cover)
		No public access		15-25% (moderate cover)
		Temporarily closed		> 65% (dense cover)

Attribute information to characterize the Open Spaces

(a) Natural Open Spaces, (b) Man-made Open Spaces

To facilitate the field mapping, primary digital data were purchased from the local planning authority (MEPA), starting from the purchase of a set of six topographic survey sheets (scale 1:2500), which cover the ‘inner’ Grand Harbour. This data enabled the a priori extraction of built up areas, and the numerous fortifications found in the Grand Harbour (figure a below). Consequently, a map of ‘potential’ Open Spaces was created by superimposing the aforementioned features on images obtained from Google Earth (figure b below).

² For more details, see QO6.3_Part 1_Summary of PPGIS Training Event



a) Selective extraction of digital data and b) Identifying potential Open Spaces

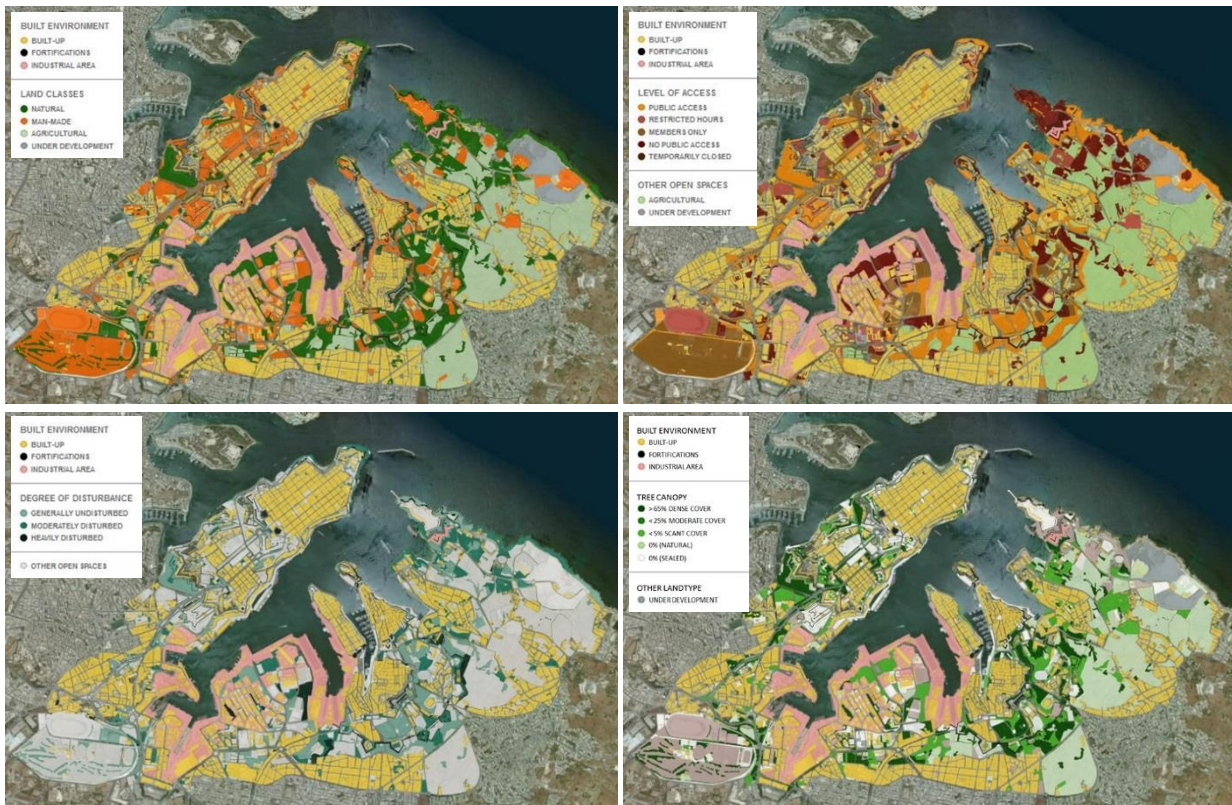
Source: a) MEPA digital data and b) Google Earth imagery in background

A3-size print-outs of the potential Open Spaces at the scale of 1:2500 (figure a below) enabled to verify these as part of a field survey (figure d below) and to record their respective attributes in purposely drawn up data collection sheets.



c) Print-out of potential Open Spaces and d) Verification of Open Spaces through field survey

Back at the office, these attributes were inputted in an Excel datasheet. Corrections to the earlier ('potential') Open Spaces were digitized and the attribute information was imported into the GIS. Consequently, a diverse set of maps, each visualizing specific attributes of the Open Spaces could be created. The figure below brings a selection of map views of the Open Spaces in the Grand Harbour which were created in CartoDB, using the Nokia Daylight Satellite Image as a base map.



Clockwise: a) Land classes of Open Spaces, b) Level of access to Open Spaces, c) Degree of disturbance in Natural Open Spaces, and d) Tree canopy in Open Spaces
Source: IRMCo maps of Open Spaces created in CartoDB

3.3.1 Crowdsourced GIS layers

The maps of the Open Spaces provided a reference background for the crowd-sourcing of Places of Interest and Eco-Heritage trails using Google My Maps. Google My Maps is very easy to use and familiar to many people, thus it avoids a steep learning curve and is widely accessible.

Existing pathways which had been mapped during the field survey of the open spaces were drawn as a reference and potential starting point for the drawing of an Eco-Heritage Trail on Google My Maps. A legend was created to guide the identification of places of historical, cultural, religious, archaeological and ecological interest.



Crowdsourced Places of Interest and Eco-Heritage Trails in Malta's Grand Harbour

Source: Crowdsourced information compiled and published with CartoDB by IRMCo

3.4 PPGIS Practice Events

Three PPGIS Practice Events together with a Closing Seminar were organized in 2015. Previous participants in the six Think Tank Seminars organized in 2014 were asked to identify further potential participants from within their social network to participate in these events, leading to a continuously larger stakeholder database. As before, an introductory e-mail and follow-up phone calls were then used to invite people to the PPGIS Practice events.

The PPGIS Practice Events catered for an audience of 25 participants and were organized respectively, at the Cottonera Resource Centre on 19 February 2015, our company's offices in Senglea on 9 October 2015, and at the Malta College of Arts, Science and Technology (MCAST) on 6 November 2015. The agenda of these events essentially adopted the same format, divided between:

- Testimonials on the Charter and brainstorming ideas for further follow-up
- Presentations on the progress with the crowd-sourced Eco-Heritage trails
- Hands-on demonstration of the mapping process using interactive tablets

The Closing Seminar, organized at our company's offices on 18 December 2015, drew 40 participants and served to validate the crowdsourced information through the online webGIS.

3.5 Follow-up activities and wider dissemination

3.5.1 Fun and green activities for schoolchildren

Aimed at raising awareness of the importance of Open Spaces specifically among schoolchildren in the inner harbour area, a week-long series of ‘fun’ and ‘green’ activities were organized in December 2015. Over 250 schoolchildren explored one of the green areas in question, the woodlands of Bieb is-Sultan, through mapping the number of trees, measuring the diameter of trunks, photographing the flora and fauna, drawing trees and the landscape on a real easel, and also acting as journalists in front of a real cameraman. They especially enjoyed encountering the ‘pirate’, Karlu, who has been living there for 500 years, and presented each child and teacher with a medal that proudly says, ‘Protector of the Environment’.



A videoclip on the ‘fun’ and ‘green’ activities with schoolchildren was uploaded on YouTube in April 2016.

3.5.2 Protected Open Spaces for the Wellbeing of Society

In a press conference attended by Her Excellency Marie-Louise Coleiro Preca, President of Malta, at Verdala Palace on 29 March 2016, IRMCo’s Managing Director, Anna Spiteri, presented MEPA Chairman, Perit Vincent Cassar with a letter – on behalf of all local participants in the Mare Nostrum project - which urges the Malta Environment and Planning Authority to adopt the principles and aims of the Local Communities Charter by recognizing the Open Spaces in the forthcoming Local Plans as Protected Spaces for the Well Being of Society.



From left to right: Her Excellency Marie- Louise Coleira Preca, President of Malta, IRMCo Managing Director Anna Spiteri and MEPA Chairman Perit Vincent Cassar.

3.5.3 Xifer l-Irdum (Teetering On The Brink)

This 27-minute documentary, raises awareness on the importance of good governance of our coastal areas and brings into focus the existing legislative lacunas that impede the public from becoming active participants in the local planning process. It features many distinct speakers, and documents the results achieved through participatory, bottom-up activities organized throughout the Mare Nostrum project.

The initial script for the documentary was prepared in December 2014, and a local film company was engaged in January 2015 to collect footage. Throughout 2015, the company collected footage of events related to the protection of Open Spaces, interviews of key personalities in Malta, and complemented with footage of the PPGIS Practice Events. Subtitling (in English) was added in March 2016.



Following three screenings of the documentary on the national TV channel (TVM2) during the first week of April 2016, the documentary was uploaded on YouTube.

CHAPTER 4 PPGIS Practice in Haifa, Israel

4.1 Topic chosen for PPGIS Practice

The Municipality of Haifa focused its PPGIS activities on the issue of the right of the public to use and access the beach. The goal is to strengthen the relationship between the city and the sea, the physical and conceptual connections between the wider city and residents of coastal neighbourhoods, who have a special relationship with the sea. The Haifa project was named “Hayam Shelanu” – Our Sea.

4.2 The case study area

The case study area extends along the coast of Haifa, from the Bat Galim neighbourhood in the north to Haifa's southern border and includes the coastal neighbourhoods of Neve David, Sha'ar Ha'aliya, Ein Hayam and Bat Galim. These neighbourhoods reflect the complexity and diversity of the entire city: Local residents are immigrants and veteran Israelis, Jews and Arabs. They have daily contact with the sea in a complex environment incorporating natural areas, recreation and entertainment along the beachfront, alongside residential and business, transport infrastructure, a hospital and military bases.



4.3 Stakeholders

Stakeholders identified in the initial Haifa case study research included:

- Government authorities and government-funded agencies

National ministries of Defence, Transportation, Interior, Environment; the municipality and municipal bodies; the Port Authority; Israel Railways; the military; refineries and the petrochemical industry; and the Kishon River Authority.

- Local organizations

NGO'S and leading planning and neighbourhood committees, environmental and community oriented organizations: SPNI, Zalul, Greenpeace, Green Couese, Bimkom, Sikui, Shatil, Nature and Parks Authority, The Boston-Haifa NGO, The Public Health Coalition, Greenpeace, Haim Vesviva, *Sea. not Wall.*

- Residents of coastal neighbourhoods

15,500 inhabitants of the immediate neighbourhoods.

- Commercial business operators

For example, beach restaurants and hotels.

- Beach users

For example, surfers, fishermen and athletes.

4.4 PPGIS Activities

The Haifa team's PPGIS activities arose from detailed research and deep consideration of the appropriate methodologies to be adopted.

4.4.1 Stakeholder surveys

Having identified the key stakeholders interested in coastal zone issues in Haifa, the team carried out two stakeholder surveys – one focussing on administrators and one focussing on the community.

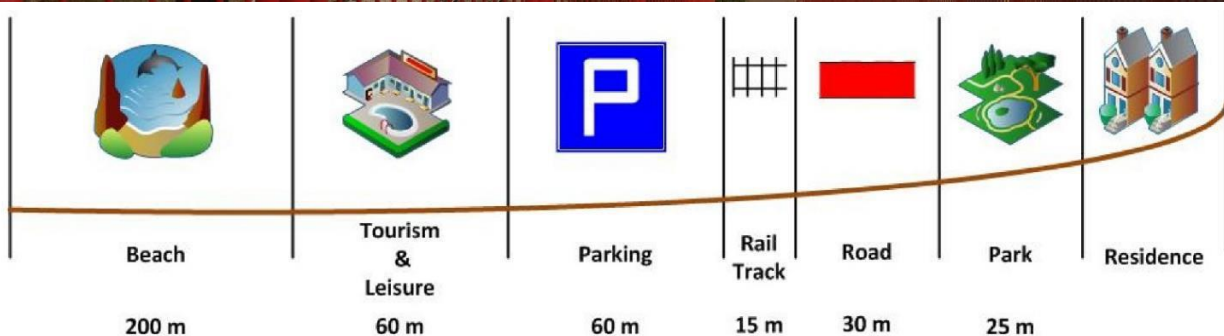
Key issues to emerge from the administrator survey included concerns regarding coastal erosion and problems with sewerage and drainage management. The administrators' "wish list" for improved coastal zone management included better access for the public to the sea; active public involvement and awareness; and a holistic planning approach.

The community survey revealed a range of conflicts and barriers on the coast and in coastal neighbourhoods: Key issues included limited accessibility to the beach; obstruction of sea views; a tension between public and private interests and conflicts between conservation and development.

4.4.2 Identifying the topics to address through the PPGIS process

Both surveys identified on key issue which stood out to the Haifa team: A disconnect between Haifa's neighbourhoods and the sea. That disconnect is both physical and conceptual.

Whilst the conceptual barriers are can be subtle, the physical barriers are clear, particularly the main road and railway line which separate the neighbourhoods from the sea.



The above findings led to the team identifying the following goals and opportunities:

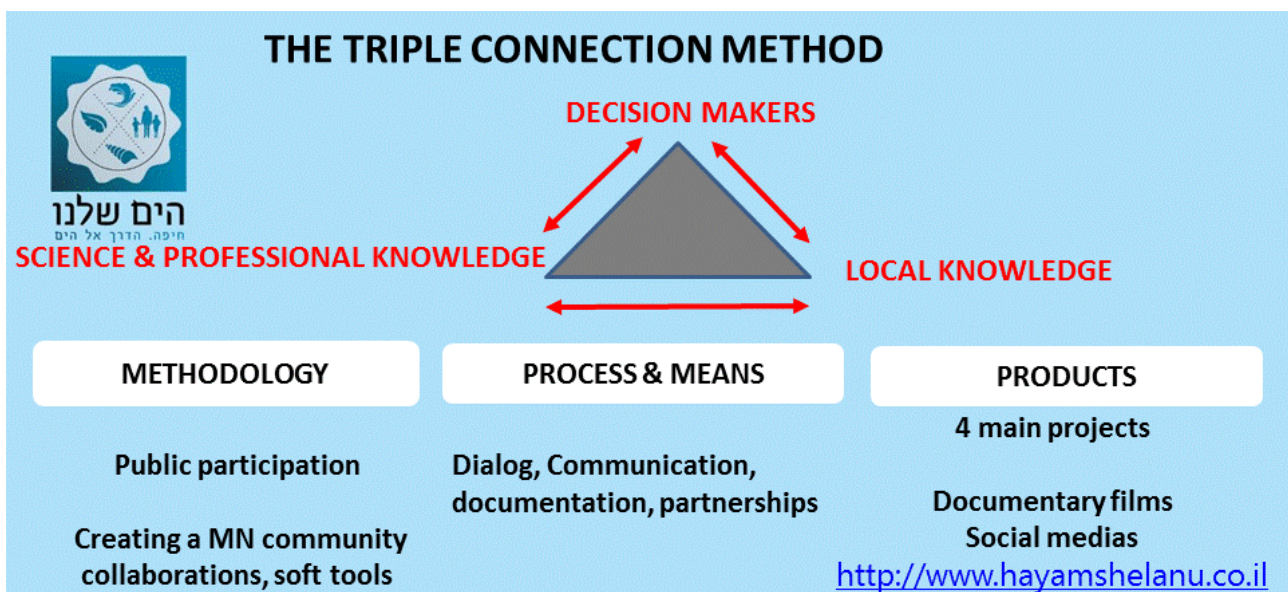
- Expand & strengthen the urban-sea relationships: Public awareness, conceptual, physical, social, legal connections.
- Expand the public's rights and responsibilities in the coastal zone: For better access and conservation of the coastal environment.
- Focus on the urban seashore as a centre of influence and opportunities.

4.4.3 Developing the methodology

The Haifa team decided that the following processes were required in order to achieve the project goals:

- Creation of an accessible knowledge base: Website, social media, etc.
- Focus on public actions: Creation of a Mare Nostrum community, networking, lobbying etc.
- Focus on communication and dialogue: Encouraging community initiatives

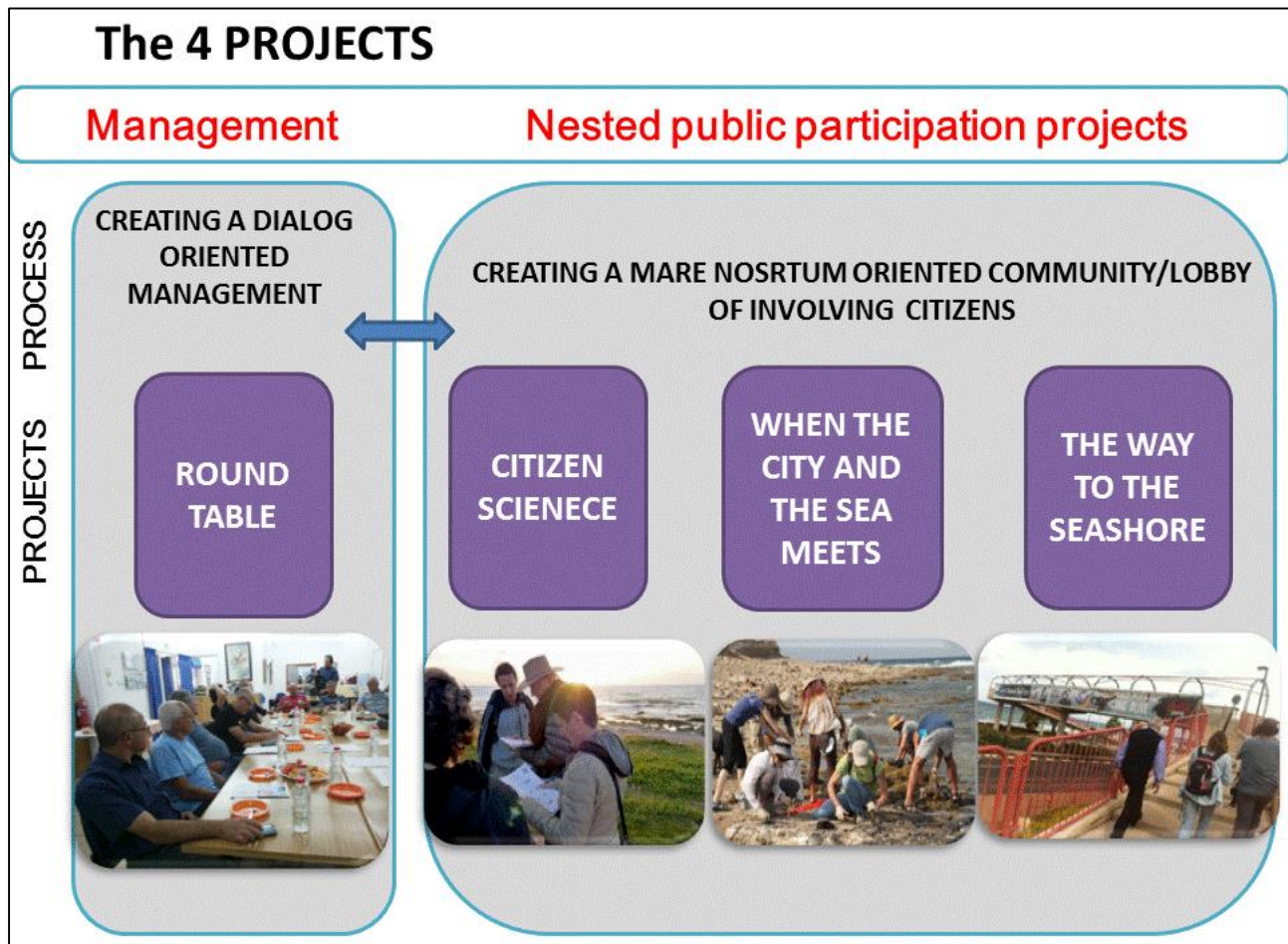
The team selected a “triple connection method”, combining knowledge and action from three important sources: The decision-makers, the local community and scientists/professionals in the realm of coastal zone management.



This method led to the development of four projects – one for decision-makers (management level) and the other three for the local community. Experts and expert knowledge were integrated into all four projects.

4.4.4 The four projects

All four projects come under the broader “Hayam Shelanu” umbrella. In order to meet the goal of providing a public and accessible knowledge base, the project team developed a detailed project website, supported by Facebook and Instagram accounts. See www.hayamshelanu.co.il.



The local community public participation projects were as follows:

"The road to the sea" was about raising awareness and physical access to the beach. The team set out to find out the attitudes of residents to the beach, to locate the access routes used by residents to the sea (on foot - through pedestrian crossings; over bridges; crossing a drainage ditch under the road and railway; private car; public transport; bike), where they come from and what people are doing at the beach. The team took walks with residents on their way to the sea and discussed the journey with them. They mapped the journey as they walked and, took photographs and film. Based on these walks, they developed recommendations for action which might strengthen "the road to the sea".

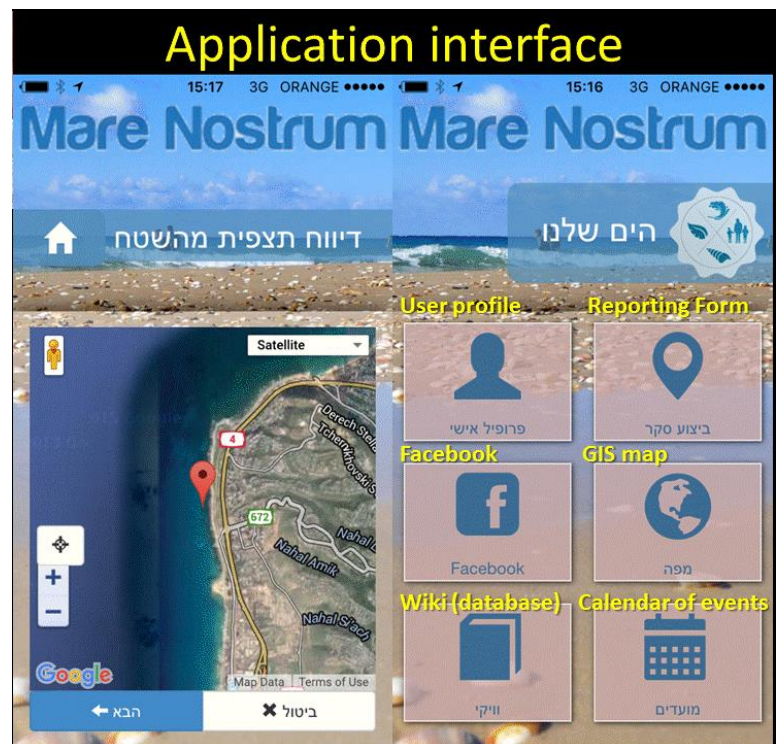
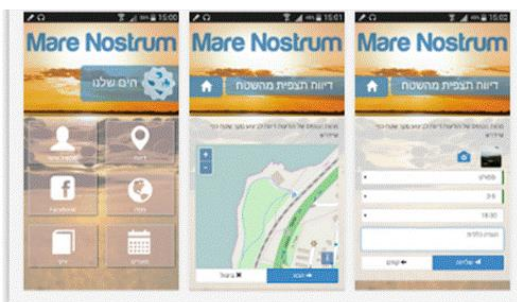
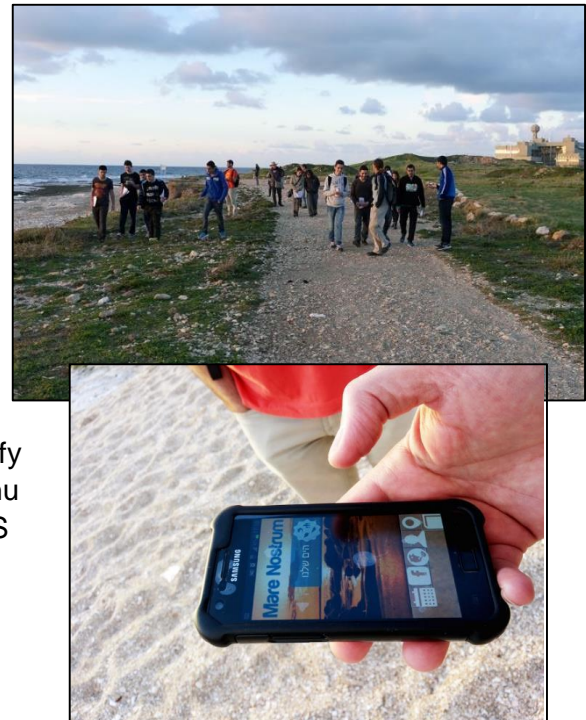


The products which emerged from this project included: Giving a voice to residents; a new communication platform between residents and the municipality; documentation of seashore narratives and physical barriers to the sea, including stories, maps and images.



"CITIZEN SCIENCE" was about understanding the way that people use the beach, as well as the gathering and processing of information by volunteer residents at Shikmona beach. The objective was to encourage the public to get involved in coastal issues and to further their knowledge on what is happening on the beach, and share it with the urban community. The idea was to create a digital platform for identifying and sharing phenomena (e.g. turtles, blossoming plants), hazards (e.g. obstructions) or special events (e.g. competition surfboards). Residents used an application on their mobile phones to identify and share information. The application has six menu items: User profile, Reporting Form, Facebook, GIS map, Wiki (database) and Calendar of events.

This combination of applied research and practice represented an innovative step towards increased knowledge and a new tool which involves the community in coastal matters.



"When the city and the sea meet" was a lecture and fieldtrip series which was open to the public, which took place once a month in coastal neighbourhoods. The lectures were given by experts in coastal matters. The purpose was to enrich and deepen the public's knowledge of the sea and coast and to encourage greater involvement by residents in the project.



The following lectures were organized:

- 26 January 2015 – The Mediterranean Reefs: A Changing World
- 25 February 2015 – Stories from Shikmona Beach
- 12 May 2015 – Local workshop for residents of Neve David
- 18 June 2015 – Treasures of the Haifa sea
- 11 July 2015 – "Adopt a Square" of Shikmona Beach – a beach cleaning event
- 31 July 2015 – Tour following 20 years of beach promenades in Haifa

"Before they built the hotel we used to be sea children – the whole neighborhood was on the beach on weekends"

"I like living near the sea and walking to the beach. It keeps me healthy"

"I don't walk to the beach nearby, I take a bus to the next one because there are less stairs on the way"





Public lectures take place at the community centers



Fieldtrips along the seashore



Visits at the Oceanographic & Limnological Research Institute

In association with this project, Haifa Municipality organized several “Jane’s Walks”, as part of the international Jane’s Walks activities named for Jane Jacobs. A series of walks through Haifa’s coastal neighbourhoods took place over the weekend of 30 April – 2 May 2015.

The main product to emerge from this project was knowledge sharing and empowerment of residents through knowledge.

The management level project was as follows:

"Round Table" – The Haifa project team set up a round table meeting to encourage much greater coordination between the many entities involved in managing the coast. Bodies involved in the round table meetings include the Haifa Municipality, the Nature and Parks Authority, Israel Antiquities Authority, University of Haifa, the National Institute of Oceanography; and the Society for the Protection of Nature in Israel). Residents of coastal neighbourhoods are also parties in the round table. Several meetings of the round table have taken place and all participants hope to work together to improve the coastal zone for the benefit of all.



The first four Hayam Shelanu round table meetings took place on the following dates: 27 January 2015, 24 March 2015, 5 May 2015, 2 July 2015.

These meetings represented an unprecedented level of cooperation across municipal divisions dealing with coastal management issues. The round table participants found common ground and agreed to:

- Continue administrative cooperation between the various bodies responsible for the seashore;
- Develop a project business plan (a leader, budget, collaborations);
- Place education and awareness as a key priority; and
- Set the Ein Hayam touristic project as a model for other neighbourhoods.

Round table No.2

Indication of problems and concerns / potentials and opportunities; suggestions of actions



Round table No.4

Suggested MN projects implementation and assimilation within Haifa Municipality with the round table participants teamwork



Round table No.1

Participants Introduction of involvements, interests and coordination of expectations and commitment to the project



Round table No.3

Suggested initiatives, actions, cluster of projects, proposals and collaborations



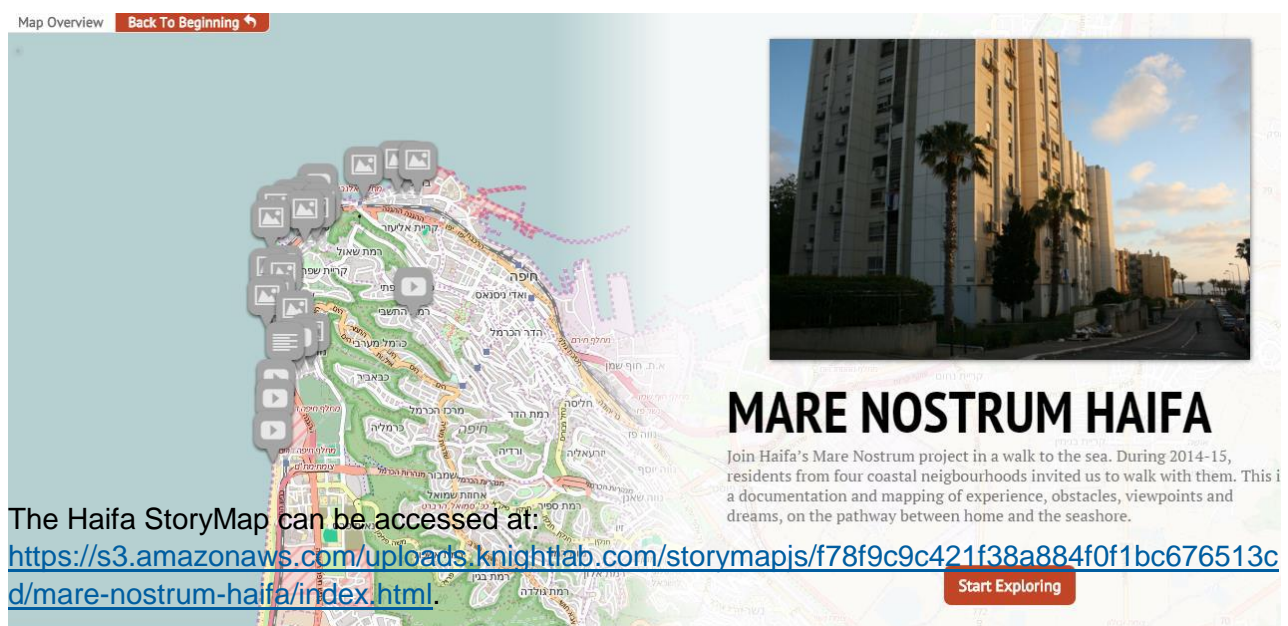
At the meeting of 2 July 2015, meeting members were assigned roles for ongoing work on coastal zone management issues. Overall, the project is expected to have lasting effects on Haifa's coastal zone management processes – with better coordination between authorities, a more engaged community, more input from experts and better interaction between all stakeholders.

4.5 GIS mapping tool

The Haifa team used the StoryMap application to map all activities in a way that is open and accessible to the public.

StoryMap is an open source tool, free and easy to use for mapping narratives. It was developed by Knight Lab, Northwestern University, Chicago – a collaboration between the schools of Engineering & Journalism, in an attempt to advance media innovation and education. StoryMap has advanced editing/storing options (with JSON data) for technical users. Its target audiences are students, journalists and communities.

The Haifa StoryMap is simple: It is based on a streetmap, which includes major land uses and building outlines – similar to Google Maps. Stories and photos can be added using a simple edit screen. All of the Mare Nostrum PPGIS activities were documented on this map.



4.6 Follow-up activities and wider dissemination

The Haifa team set up a special website for this project, in Hebrew – www.hayamshelanu.co.il. This website gives full details of the four projects, way to get involved, contact information, updates and more. There is also a Hayam Shelanu Facebook page which is still active after the close of the Mare Nostrum project.

The Haifa team produced 6 videos about their activities: Three about “The road to the sea” project and one each about the three other projects respectively.

Following the PPGIS activities and based on their outcomes, the Hayam Shelnanu team put together a list of recommendations for the municipality and other authorities. That list includes:

- Signage: Improved signage about the code of conduct for the beach, permissible and forbidden activities and uses, and environmental information.
- Specific improvements to the citizen science project and related mobile phone application.
- The beach north of the Carmel Beach Towers was found to be an important breeding ground for sea turtles. A promenade was recently developed along this shore and there is concern that night-time business activity in the summer and too much lighting could disrupt the nesting. It was recommended to develop special provisions regarding activities and lighting at this beach.
- Following a clean-up operation, there are still pockets of tar on the rocky coast of Shikmona Beach. Further cleaning operations were recommended.
- Following finding that illegal fishing activities are a problem, particularly at Shikmona Reserve, the team recommended improvements to the fishing regulations, as well as to the monitoring and enforcement of existing regulations.
- Increased monitoring and cleaning operations were recommended, particularly following weekends and holidays.



CHAPTER 5 PPGIS Practice in Spain

FEPORIS worked from the initial stage of Mare Nostrum on two different case studies:

- The waterfront of La Albufera, a natural area belonging to the Nature 2000 Network close to the metropolitan area of Valencia and subject to high human pressures. Cooperation between public administrations and some stakeholders in the environmental regeneration of this area, which was partially developed during the end of 60's, can be considered as a success case;
- The urban waterfront of Alicante Bay, which concentrate such a complex situations and stakeholders with competing interests, that any action on the part of the different public administrations has been blocked until now. In 2010 the City Council, the Autonomous Region and the Ministry of the Environment signed an agreement to tackle the Bay's problems, through a master plan in which citizens' associations have a voice through a public participation committee.

Both cases offered room for the development of the Mare Nostrum's PPGIS activity through a real and practical pilot experience, since cooperation frameworks were set up. Possible topics to be addressed were selected under WP5 and presented during the project meeting held in Kavala in March 2015.

Basically, the topics dealt with:

- To prioritize problems and solutions related to the regeneration of open spaces, the refurbishment of the coastline and the conflict of uses in some sectors, in the case of Alicante; and
- Beach use planning, as some of the conflicts/important topics had to do with the use of the Maritime Terrestrial Public Domain (MTPD), mass public use and the practice of some nautical sports in particular sensitive areas.

After local consultations and due to several factors, it was decided to tackle the issue related to beach use planning and management.

On the other hand, and following local discussions it was decided to focus the participatory process on the sphere of the different public administrations involved in coastal management/decision making and some experts/stakeholders.

5.1 Topic chosen for PPGIS Practice

As stated above, the use of MTPD was one of the key topics that emerged from the Case Studies analyzed within WP5. It is in fact one of the big topics, since most of the coastal tourism and recreational activity relies primarily on the narrow strip formed seaward by the shallow waters and landward by beaches, sand dunes, coastal wetlands and the first lines of the urban areas³.

³Eg. According to some studies 15 % of the Valencian Regional GDP is produced within a 500 m coastal strip, Valencian Territorial Strategy, Generalitat Valenciana, 2011.

But being a key factor for coastal tourism offer and production, it is also a basic element of the green infrastructure and of the open spaces network, which are key for the local communities. Yet, this narrow strip has become a public space used not only in summer but during the year with recreational purposes, allowing a direct contact with the sea and, in some cases, with coastal nature.

On the other hand, because of its nature of limit between land and sea, this strip is extremely fragile and then its use has to be combined with protection measures in order to avoid harmful effects from activity and preserve it.

In addition, during Mare Nostrum, the Spanish Coastal Law was amended setting up a different use regime for “natural” beaches and “urban” beaches⁴. Among other issues, these regulations establish that each Autonomous Region, with the participation of several Authorities, has to distinguish “natural” beaches from “urban” beaches. Depending on the classification of each coastal stretch the Law foresees different degrees of “intensity of use”, affecting allowed uses, such as seasonal beach bars (distances, m2), events and other facilities.



Beach uses. Source: own compilation from several sources.

These new regulations have introduced new concepts as this beach differentiation (“natural”/“urban”), which is something completely new in Spain. On the other hand, although the regulations set out general guidelines to carry out the differentiation⁵, the particular criteria for establishing this classification remain open, besides the wide variety of hybrid situations and parameters to consider (classification of land, degree of urbanization, degree of consolidation, density, intensity of public use, protected sites, environmental values, width of the setback, etc.).

⁴ See Spanish Coastal Law (art. 33) and Royal Decree 876/2014, of October 1, adopting the General Regulations for the development and implementation of the Coastal Law (art.67)

⁵ Basically based in the developed character of land and the presence of environmental values protected by law



Protected dune area (Nature 2000 site) in an urban area. Source: Spanish Ministry of Environment.

In this context the idea was to test out PPGIS as a methodology that could help to implement a legal regulation which introduces a new classification of beaches. That is, to make a real test about the perception of several stakeholders on these new beach categories using GIS tools, in order to deepen the criteria to consider to carry out this differentiation. Moreover, this coincidence brought the opportunity to focus the activity on a legal-institutional gap⁶ and an innovative issue with important consequences on the day to day beach management.

5.2 Case study sites used for the PPGIS Practice (Boundaries for the GIS layers)

Attending factors that could influence the perception of participants leading to differences in the classification, 21 sites spread out along the Valencian coast were initially selected. Those factors were the following ones:

- Developed - but not built - areas;
- Protected areas in urban waterfronts;
- Non-developable areas already built;
- Boundary conditions making difficult the definition of coastal stretches;
- Low density urban areas;
- Presence of linear urbanization;
- Urban areas with mixture of uses.

Thus, sites where there are conflicting perceptions about what is 'urban' and 'natural' were selected for the PPGIS activity.

The 21 coastal stretches covered about 65 km. Some of the selected sites belong to the waterfront of La Albufera, which was one of the case studies selected.

⁶ Which is the focus of Mare Nostrum project

The approach consisted in two steps: a first one oriented to carry out a GIS analysis in order to better define and frame the problem, and a second one focused on the participation itself.

5.3 GIS Layers

FEPORIS carried out a research of several official sources of geographical information available in order to analyze different possibilities for setting up the activity. This included also information from Coastal GIS of the Regional Administration, layers generated by the Polytechnic University of Valencia within the ERAM Project⁷ and from the Spanish Ministries of Public Works⁸ and Environment⁹.

After discussions about the data and geographical information needed, it was decided that the GIS layers to be used in order to implement the pilot activity for classifying coastal stretches using PPGIS were essentially the following GIS layers:

- Land-uses, Based on the land cover “Spanish Land Use Information System”¹⁰, available at Terrasit, which include developed and non-developed land as well as land uses which in turn allowed a classification of the developed land depending on the type of urban development (“intensive” vs “extensive/sprawl”);
- Classification of land¹¹, based on the legal status of the land from an urban point of view, which include urban areas, developable areas and non-developable areas; and
- Protected areas¹², which include the areas covered by the environmental laws and statutory plans (Nature 2000 and sub-regional protected sites);

These layers are complemented with satellite imagery, aerial photos, and the following layers:

- Public Domain and setback zone, from the Regional Coastal GIS; and
- Stretches selected (polygons).

In order to keep a balance between the simplicity of the process and the essence of its scope, no additional layers were finally considered even if additional layers were generated from land-uses and Classification of land layers through particular GIS operations within the first step of the activity (see below).

As the criteria for the classification of beaches was not defined, in order to study and analyze the different alternatives to approach the problem during the process a research was carried out (step 1).

The research, carried out in cooperation with the Regional Administration and the Regional Cartographic Institute consisted of:

- A supplementary analysis of the regulatory framework to that carried out within WP4, deepen in the particular topics related to the activity. This was necessary to set up the scope of the

⁷ Strategies for sustainable regeneration of tourism settlements on the Mediterranean coast

⁸ Atlas Building, 2011

⁹ Coastal eco-cartographic and beach layers

¹⁰ “Sistema de Información sobre Ocupación del Suelo de España”, SIOSE, from photo interpretation of satellite images

¹¹ Based on the layer “Planeamiento Urbanístico”, available at Terrasit

¹² Based on the layer “Infraestructura Verde del Territorio”, available at Terrasit

participatory process, both from the criteria to be employed and for the consequences/effects of the classification of beaches over the Public Domain;

BASIC CHANGES IN THE SPANISH REGIME OF BEACH USE			
TYPE OF USE	REGULATION	URBAN BEACHES	NATURAL BEACHES
PERMANENT FACILITY	RGC 1989	Sm 150 m ² (Sme 100 m ²) Dmin 200 m	
	RGC 2014	Sm 300 m ² (Sme 150 m ²) Dmin 150 m	Not permitted
	Differences	Sm 150 m² (Sme 50 m²) Dmin -50 m	Eliminated
REMOVABLE FACILITY	RGC 1989	Smáx 20 m ² Dmin 100 m	
	RGC 2014	Sm 70 m ² (Sme 20 m ²) Dmin 100 m	Sm 70 m ² (Sme 20 m ²) Dmin 300 m
	Differences	Sm 50 m² (Sme 0 m²) Dmin 0 m	Sm 50 m² (Sme 0 m²) Dmin +200 m
EVENTS	RGC 1989	Allowed	
	RGC 2014	Allowed	Not Allowed
NAUTICAL SPORTS*	RGC 1989	Allowed	
	RGC 2014	Allowed	Not Allowed
MAX. BEACH OCCUPANCY**	RGC 1989	50% S	
	RGC 2014	50 % S	10% S

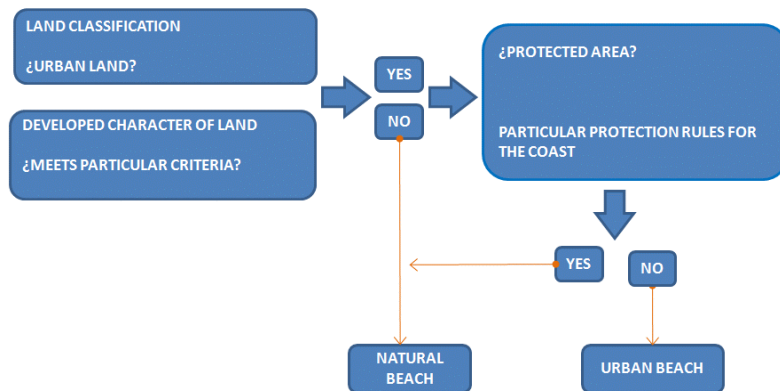
**Federated nautical sports facilities / **By uses subjected to administrative authorisation
S high tide beach surface
Sm maximum surface/Sme maximum surface enclosed/Dmin minimum distance
Comparative analysis of past and new regulations*

- Analysis of the available background information: geographical data bases and previous experiences;

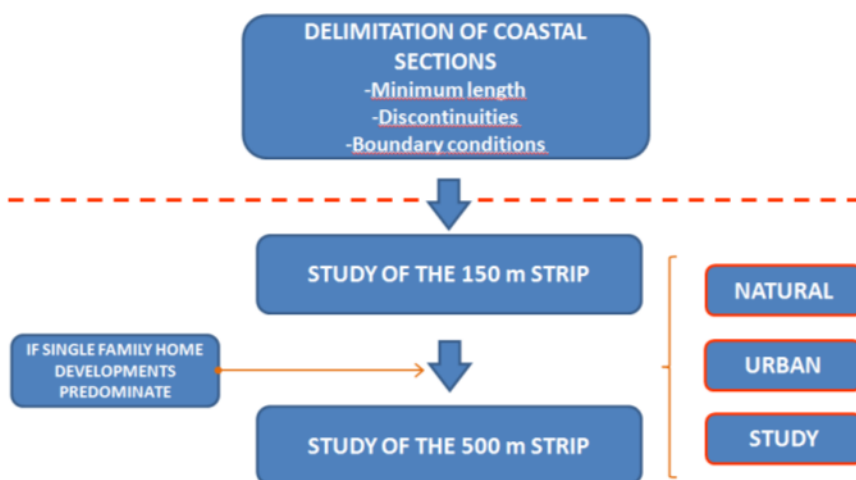
As stated, the general criteria leave some room to approach the problem. The technical process of classification of coastal stretches admits, therefore, several approaches including the definition of sub-categories and / or additional criteria (e.g. carrying capacity, uses, tourist services) that could facilitate a more detailed classification. Moreover, an approach based only on the variables

considered in the Regulation, taking the land classification status as an approximation to the concept of "developed land", led to different decision trees.

Then, taking into account the specific context of implementation (characterization of the Valencian coast) the methodological path selected was the following one:

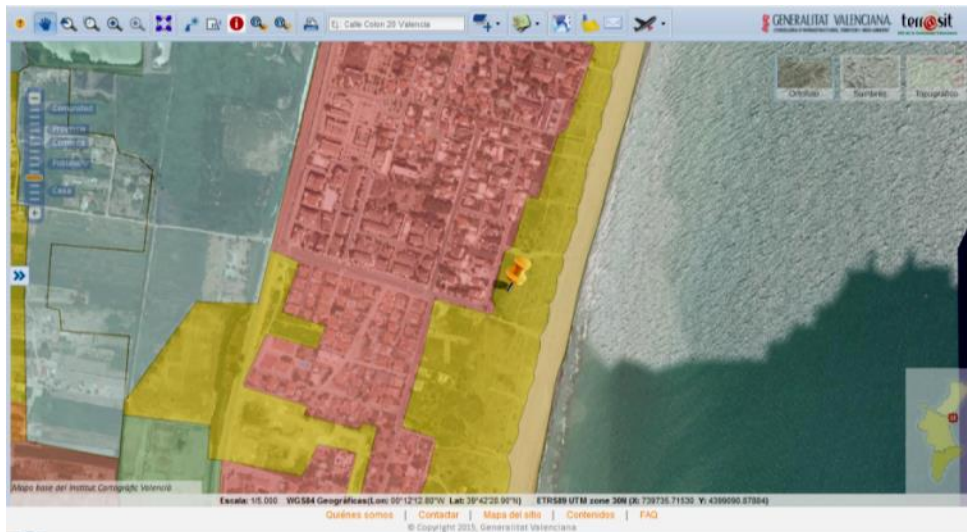


That is, as protected areas are in general well mapped, the focus was put on approaching the problem of defining what could be considered “urban”. In this sense, the general approach followed this scheme:



To facilitate the analysis, as stated above, the following layers were generated:

- Beaches (polygons), obtained by unifying some coastal categories from the Land-use layer (i.e. beach, dunes and coastal sandy areas); and



Definition of the beach zone from the land use layer. Source: Terrasit.

- Types of land (polygons), obtained by crossing the layers “Land-use” and “classification of land” and making some readjustments to further obtain a new categorization of land, including the following types:
 - Consolidated urban land (**type 1**): comprises land areas classified as urban or developable¹³ with an artificial land cover. Under this category have been differentiated:
 - Type 1A, including intensive/medium-high density developments (predominance of block building types): correspond to those polygons with a value of land classification equal to "urban" or "developable" and a land use value of "intensive artificial"; and
 - Type 1B, including sprawl/low density developments (predominance of single family homes building types): correspond to those polygons with a value of land classification equal to "urban" or "developable" and a value of land use equal to "extensive artificial";
 - Non developed land (**type 2**): comprising those polygons land classified as "urban" or "developable" land with an land use value of "non artificial";
 - Land apparently developed (**type 3**): comprises those polygons that have a land classification value of "non developable" but a land use value "artificial" (usually low-density developments); and
 - Non developed land (**type 4**): comprises those polygons that have a land classification value of "non developable" and a land use value "non artificial";

¹³It was decided to group developable areas with already developed urban areas. This methodological assumption was made in order to reduce the margin of error after firsts estimations.



Legal status of land, Source: Terrasit.



Land uses layer. Source: Terrasit.

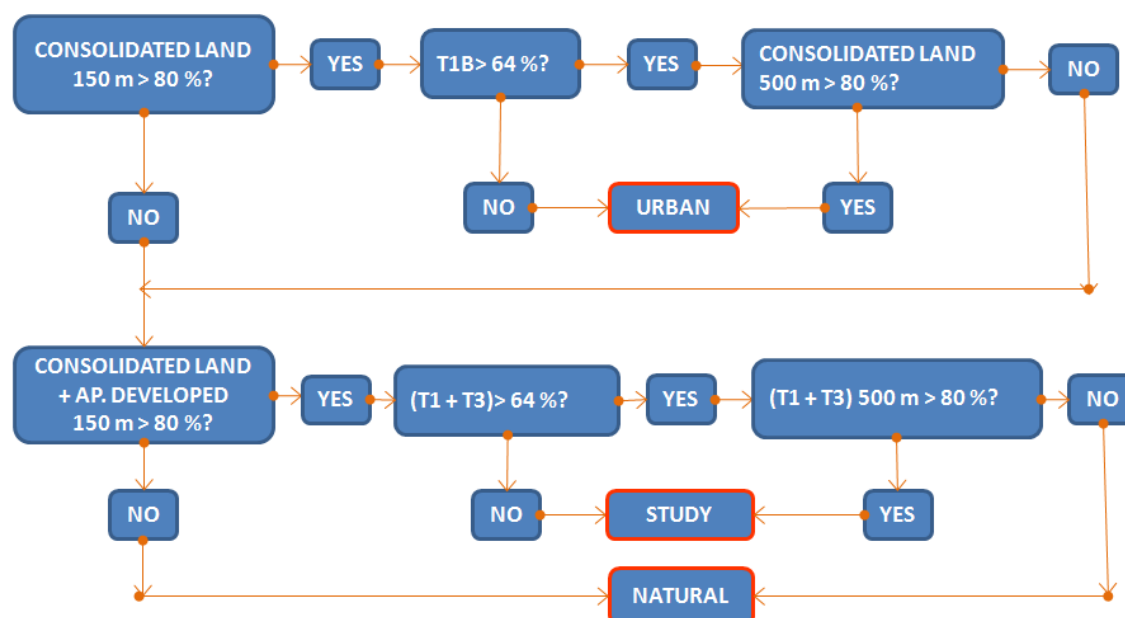
Summarizing, every piece of coastal land (a part of those polygons identified as beach) fell in one of the following categories:

LAND TYPE	LAND USE	LEGAL STATUS OF LAND
T1. Consolidated urban*	DEVELOPED LAND	URBAN/DEVELOPABLE
T2. Non consolidated	NON DEVELOPED LAND	URBAN/DEVELOPABLE
T3 Apparently developed	DEVELOPED LAND	NON DEVELOPABLE
T4. Non developed	NON DEVELOPED LAND	NON DEVELOPABLE

*includes types T1A and T1B

Land types resulting from the GIS analysis

After consultations with the Regional Administration Department in charge of coastal management, which in turn requested the opinion of the Ministry of Environment Regional branches regarding the general approach and some parameters to be considered, the algorithm to conduct the analysis through the GIS was set according to the following flow-chart:



Basically, the algorithm consisted in classifying the coastal stretches with a focus on the developed/non developed character of land by studying through GIS techniques the 150 m¹⁴ and 500 m¹⁵ strips. The methodology allowed to distinguish real urban areas from hybrid situations by setting particular thresholds over the % of developed surface.

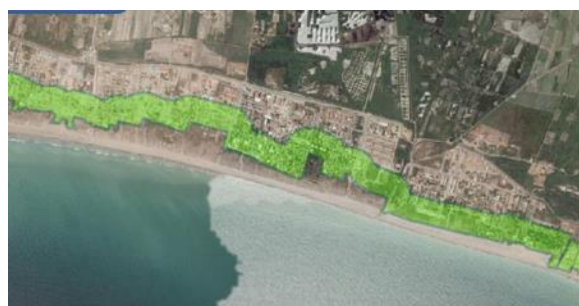
Then, the defined stretches were subdivided according the perception of the team and following a set of criteria defined by FEPORTS. The criteria took into account the main variables considered in the analysis, that is land-use, land development, building typologies, legal status of land, length, etc. This was an iterative process.



Pilot unit num. 13 “Pobla de Farnals – Puzol”. Each section was subdivided into parts, trying to differentiate urban and natural stretches.

The methodology has been applied to the 21 selected pilot stretches, representing 65 km of coastline, which were in turn divided in 56 sections according to the criteria.

Some examples are presented in the following figures:



Shape	Polygon
TRAMO	Canet- Almenara
SUP_TRAMO	70,069557
ID_TRAMO	14B
TIPO1A	9,933384
TIPO1B	83,413856
TIPO2	3,630409
TIPO3	3,022353
TIPO4	0
Shape_Length	10193,622077
Shape_Area	700695,572894
CATALOGACION	NATURAL



Field	Value
OBJECTID	43
Shape	Polygon
TRAMO	Canet- Almenara
SUP_TRAMO	224,318105
ID_TRAMO	14B
TIPO1A	3,555278
TIPO1B	59,981418
TIPO2	17,072304
TIPO3	1,166294
TIPO4	18,224782
Shape_Length	10841,016135

¹⁴ The 150 m coastal strip corresponds in most of cases with the setback zone (100 m) and a standard block (50 m)

¹⁵ The 500 m coastal strip corresponds to the Influence Area defined by the Spanish coastal Law.



The results were presented and discussed during July 2015 in a meeting held at the Regional Administration headquarters with the participation of the departments in charge of coastal management and land use planning.

5.4 PPGIS Practice Events

The approach for the PPGIS practice events changed due to several reasons during the project, including provisional situations and changes in the Administrative bodies due to the local, regional and national elections.

After discussions with the Regional level, the initial focus was to involve a reduced group who would assess a total of 12 of the 21 pre-selected pilot sites:

T2. La Mata (Torrevieja)	T11. Valencia - Sueca
T4. Elche – Alicante	T13. Pobla de Farnals – Puzol
T5. Paradís (Vila Joiosa)	T14. Canet d'En Berenguer - Sagunt-Almenara
T7. Denia norte – Oliva	T16. Arenal (Burriana)
T9. Xeraco	T19. Oropesa - Cabanes
T10. Cullera (norte y sur)	T20. Peñíscola

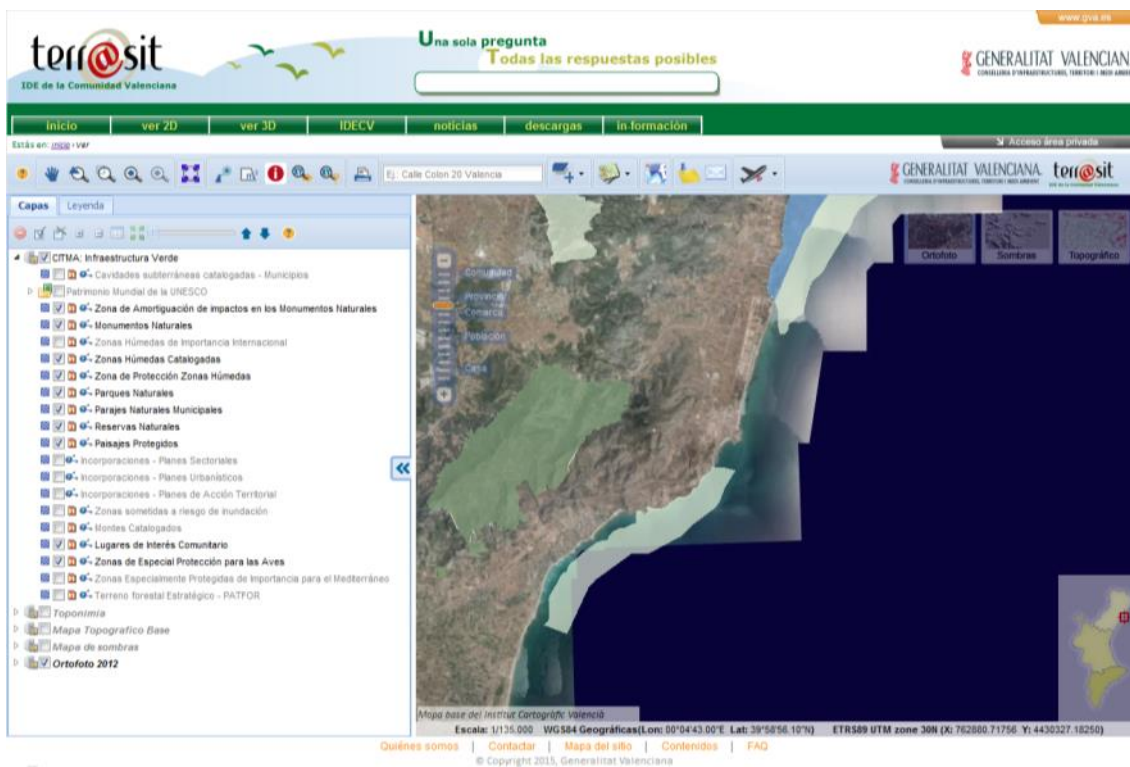
Selection of pilot sites for the PPGIS practice events

FEPORIS planned some contacts in order to get together experts, public officers from different administrative bodies (local, regional and national), universities and representatives of associations (NGOs, Tourism). Most of the people, already contacted to complete the surveys of the selected case studies were called to form the core group. Additional experts to the core group had to be contacted in order to have a good geographical coverage. Thus the participatory process was initially planned not to be opened to everyone, but to a selected group of representatives from organisations and experts on coastal issues.

A brochure on the PPGIS event, its scope, objective and expected outcome was drafted. To overcome the logistic difficulties linked to the participation of people from three different provinces, it was decided to launch the process by using Terrasit. Terrasit is the Spatial Data Infrastructure (SDI) of the Valencian Region and includes a geoportal operated by the Valencian Cartographic Institute. The geoportal allows to obtain, consult and share Regional geographic information.

In this sense, it was planned a process in which, with the support of Terrasit to facilitate the integration and interpretation of the basic parameters to consider when classifying, a panel of experts showed their preferences through mapping for later discussion in a dedicated workshop. The topics to be discussed dealt with cataloguing criteria in view of the differences and similarities observed in the maps generated by each of them.

The work carried out during the preparation phase was aimed at facilitating the focus of the problem and the later discussions by identifying criteria, gaps, potential problems alternative approaches and a potential methodology.



An application over Terrasit allowed the participation

The shapes selected to be used within the process were the basic ones, that is:

- Land Use;
- Legal Status of land;
- Protected Areas;
- Satellite and aerial photos; and
- Stretches selected.

The Regional Cartographic Institute, which supported FEPORTS during the process was asked to enable an application that would allow each member of the panel of experts to consult the above basic information and carry out the classification of coastal stretches.

For this purpose, it was planned to provide each member of the panel a username and password that would allow access to the application over Terrasit and classify the pilot stretches.

The mapping process planned consisted of classifying the coastal stretches by subdividing each one in sections according to the criteria of each participant, and assigning an attribute to each delineated section according to the perceived natural or urban character.

The graphic information planned to be gathered through the process was therefore a set of polygons (sections) mapped on the main stretches and classified as natural or urban. The application allowed to make comments and remarks to justify the classification. Each participant would have access to their own information while FEPORTS and the Cartografic Institute would have access to the results generated by all participants.

Once designed the tool to perform the process, a simulation was planned to test the application in order to verify, before the pilot, its effectiveness and detect if any gaps or problems that must be solved.

This approach allowed to carry out the mapping phase through virtual sessions, so to overcome logistics and schedule obstacles linked to the number and base of the potential participants, and then organize the discussion through a workshop.

This scheme also allowed some flexibility. That is, depending on the needs and issues raised by participants, more than one workshop could be held if necessary. This sessions would not be open to the general public.

Moreover, the tool designed also allows to set up options to expand the process without problem, such as the participation of interested public through a separate virtual session or by enabling options to collect opinions/degree of agreement about the final assessment, both about the results or about the outcome of the application of certain criteria in the classification of coastal stretches.

5.5 Follow-up activities and wider dissemination

Follow-up activities foreseen include:

- The use of the PPGIS application for a wider participatory process in the framework of the current adoption process of the Regional Action Plan of the Coastal Green Infrastructure;
- A feasibility study to take advantage of the PPGIS application to explore the possibility to extend its use for coastal management, particularly for what regards the topics related to beach planning and to the authorisation of beach facilities;
- The discussion of the criteria set within the Regional think tank for coastal issues, in which take part the Regional and National Departments in charge of coastal management;
- The presentation of the the findings in a Regional workshop with the participation of representatives from the 60 coastal municipalities and professionals linked with coastal management as part of the local think tank activities.

CHAPTER 6 PPGIS Practice in Greece

6.1 Topic chosen for PPGIS Practice

The topic chosen was the Observatory of the Coastal Zone of the Municipality of Kavala. The choice was dictated by the fact that since the inception of the Mare Nostrum project the Municipality of Kavala has recognized in the Observatory a unique opportunity to build and run a mechanism that would allow it to expand its offer of services to its residents and the broader public.

It is also seen as an instrument that would facilitate and deepen cooperation with a wide array of stakeholders, coming in the beginning largely from the public institutional scene but expected to involve in the very near future key actors from civil society and the private sector.

The presentations and discussion centred on the data and services already embedded in the web-based Observatory and the need to enrich and update them jointly with the aim to make them accessible and useful to an ever expanding public.

6.2 GIS Layers

GIS layers were organized and presented in such a way as to make easily comprehensible the basic principles of ICZM such as sound management of future development projects along the coast, protection of the natural and biodiversity features of the area, preservation and promotion of the cultural heritage, safeguard of the good status of beaches, fight against social exclusion in coastal communities and recognize the central role that the coastal zone is invited to play in an age preoccupied by climate change and overall sustainable development.

The primary layers of the WebGIS are the following

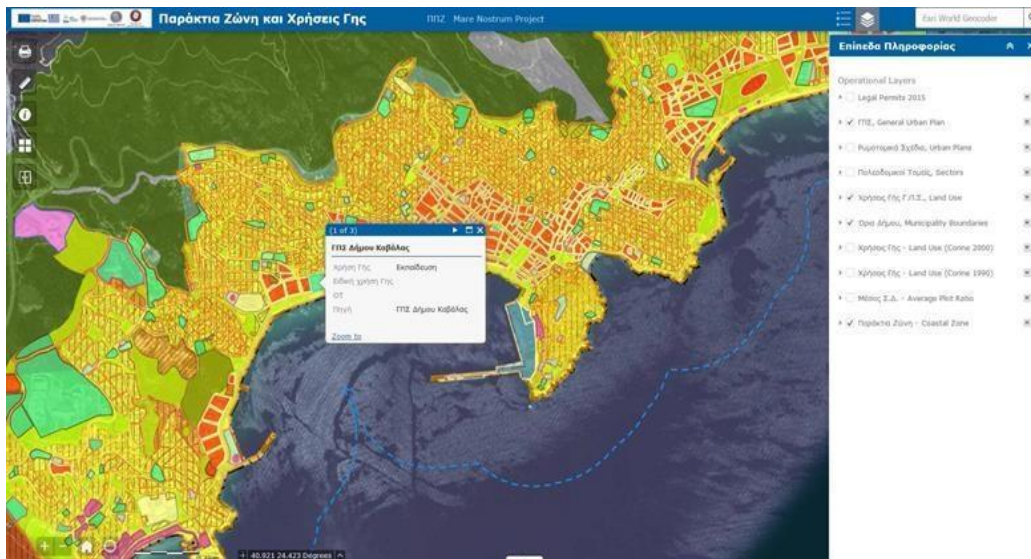
- Base maps
- Legal-institutional data
- Urban & Peri-Urban Spatial Planning
- Administrative Decisions (at the level of the Municipality)
- Points of General Interest
- Public Grids
- Environmental Data
- Outputs of Forecasting Models
- Climate Change Impacts

Each layer contains sub-layers with information designed to give citizens an in-depth insight into the functioning of city infrastructures, services and overall environmental conditions.

6.3 Web cartographic applications

All of the above were organized in four basic web cartographic applications which are the following:

6.3.1 Land Use and Coastal Zone



Land Use in Coastal Zone

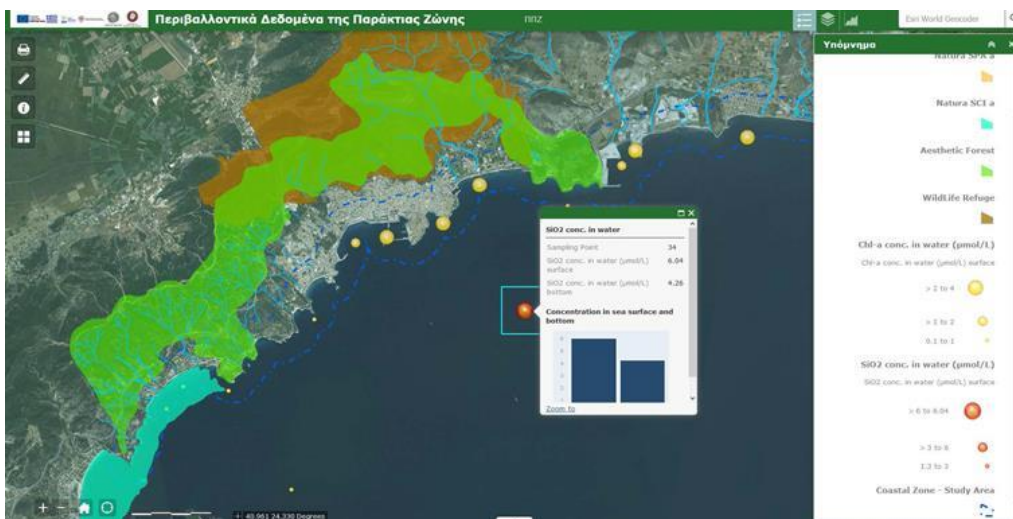
In this Web GIS application, the layers that are presented are:

- General Urban Plan- Land use in urban areas
- General Urban Plan- Land use in rural areas
- Administrative boundaries
- Corine Land Use (1996, 2000, 2012)
- Coastal zone

6.3.2 Environmental Data in Coastal Zone

The environmental data layers of this application are the following:

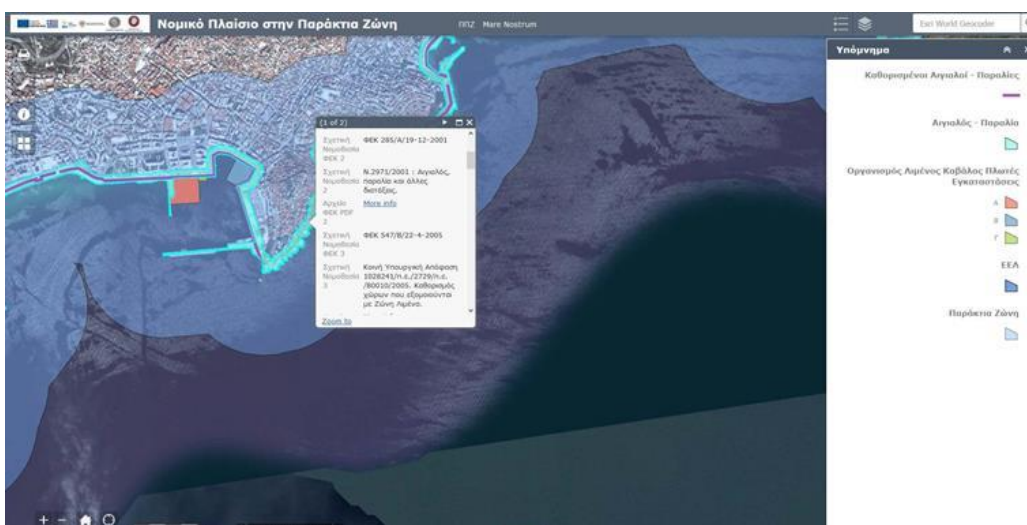
- Torrents
- Natura areas (SCI-SPA)
- Aesthetic Forests
- Wildlife Refuge
- Pollution Sources
- Blue Flags
- Directiva Seveso
- Bathing Areas
- Sampling results (Chl-a, SiO₂, PO₄, NO₂, NO₃, NH₄, Ni, Pb, Cr, Cu, Zn, Cd, Hg, As, Nitrogen, Phosphorus)



Environmental Data in Coastal Zone

6.3.3 Legal Framework in Coastal Zone

In this application the legal framework of the coastal zone is presented through the appropriate symbology. All the presented data are provided with links to the Official Government Gazette which is related to the subject. The layers of this application are:



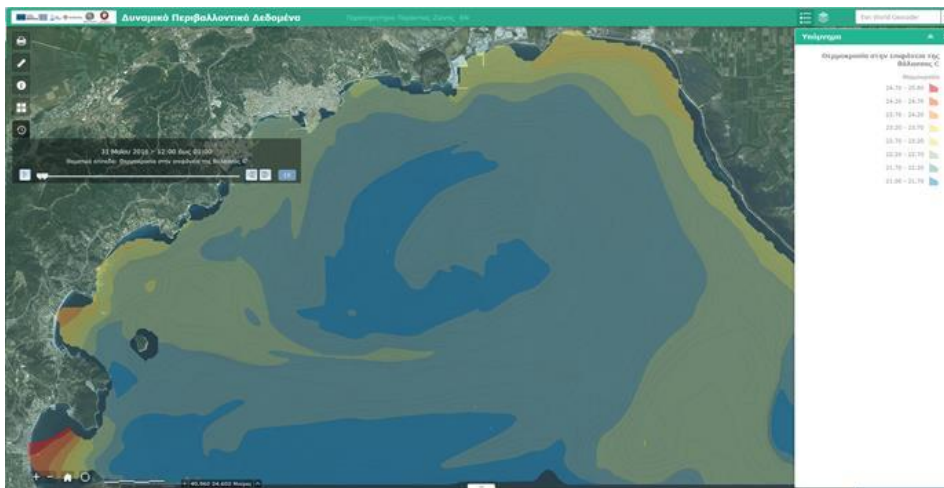
Legal framework in Coastal Zone

- Defined Coastline
- Biological Wastewater Treatment
- General legal framework in Coastal Zone
- Kavala Port Authority

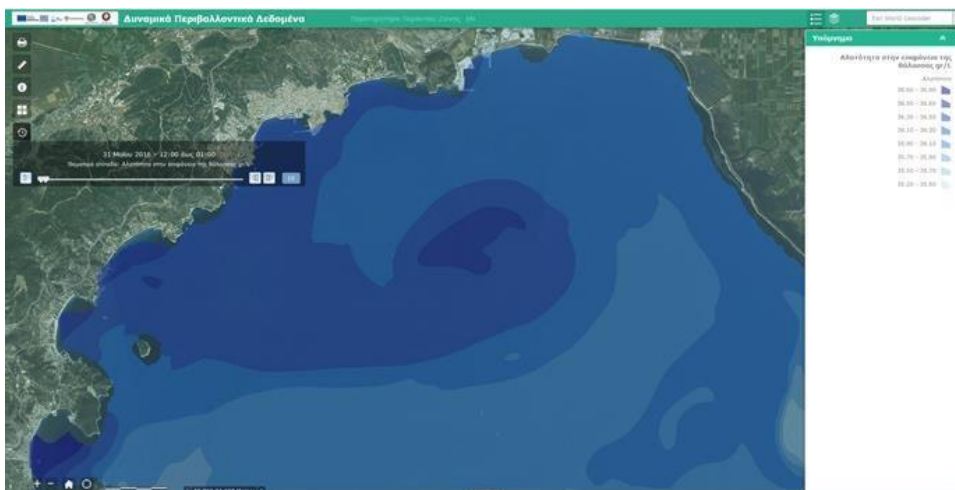
6.3.4 Dynamic Environmental Data

In cooperation with DUTH a dynamic GIS application developed. In this application a number of layers with predicted environmental data, specifically for the area of Kavala Bay, are offered every day from the DUTH and are uploaded through OCZM. The data are showing the predictions of four basic parameters in the surface of the sea. The data have hourly time scale and through a widget the user can view the differences between time. At this point the data are:

- Temperature
- Speed
- Salinity
- Density



Dynamic Environmental Data Temperature (Sea surface)



Dynamic Environmental Data Salinity (Sea surface)

6.4 PPGIS and PPGIS Practice Events

In addition to the above applications participatory tools were developed and are ready for use by the OCZM.

«Παρέκτα ζώνη, η γεωγραφική περιοχή εκπαιδευμένης της αετοναυαυής στην οποία η αεικαστρίδαση μεταξύ του θειάσου και του χροαίου τυμώτος αποκτά την μορφή παύσητων συστήτων οικιαγικών στοιχείων και παύων απορριπώμενων από διακίτες και εδοκίτες συνιστώσες που συνυπαύουν και αεικαστρίδων με τις ανάθωπτες καινότερες και τις αγκίτες καινινικα-καιναυικές δραστηριότητες»

ορισμός της Παρέκτας ζώνης όπως δίνεται

στο Μεταγωγικό Πρωτόκολλο για την Ολοκλήρωμένη Διακρίση Παρέκτων Συνινών

Το Παρατηρητήριο Παρέκτας ζώνης

Είνον άλυσ Καθόλας αναπτύχθηκε ένα Πρότυπο – Παρατηρητήριο Παρέκτας ζώνης. Στο πλαίσιο αυτό έγινε η ανάπτυξη ενός ΓΕΠ/Γεωγραφικό Σύστημα Πληροροαών) και ενός ΓΕΠ/Γεωγραφικό Σύστημα Πληροροαών Συμμετοχής Κοινού) μέσω του οποίου θα γίνει η διακρίση δεδομένων αγκίτων με την διακρίση της παρέκτας ζώνης του άλυσ (θεωτικά και ναυικά στοιχεία, παρόλινικα και πολιτιστικά χαρακτηριστικά, ανινώρηση πάσεων και εκτύπωση επιπτώσεων).

Παράση Μελέτης

Η άσση παράση «ευνόησης» του Παρατηρητηρίου είναι η παρέκτα ζώνη του άλυσ Καθόλας με ζώνη διακρίση 500 μ. εκπαιδευμένης της αετοναυαυής. Η οροθέτηση αυτή της παρέκτας ζώνης δεν πάρετα δέσσει να παροαίσει την δυνατότητα του Παρατηρητηρίου να έχει τουλάχιστον επαρκή δαθέση χωρικών δεδομένων και των άσων παρών, καθώς ενόχιστο να επηρεάζουν άμεσα την παρέκτα ζώνη.

1. Επιλέξτε φόρμα

Complaint_Form

2. Εισαγάγετε πληροφορίες

Comment

3. Επιλέξτε τοποθεσία

Καθορίστε την τοποθεσία για αυτήν την καταχώρηση κάνοντας κλικ / πατώντας στο χάρτη ή χρησιμοποιώντας μια από τις παρακάτω επιλογές:

Αναζήτηση Γενική πληροφορία UTM

Εισαγωγή διεύθυνσης ή ονόματος

Ευνοησμός της θέσης μου



4. Συμπληρώστε τη φόρμα

Προσθέστε τις πληροφορίες αυτές στο χάρτη.

Υποβολή καταχώρησης Προβολή υποβολών

6.4.1 PPGIS application Geoforms

These include the establishment of a platform that allows users to post their request or complaint and assign it to a specific location as well as to integrate citizens as partners and given a role into deliberative processes about planned future municipal projects.



PPGIS Poll application

6.4.2 Other Services

It is noteworthy that amongst the services already offered by the Observatory, one that drew particular interest was the conversion in electronic format of building permits which, in combination with the linking of the coastal zone with the legislative framework in force, are expected to significantly ease interaction of residents and investors with municipal services.

6.4.3 PPGIS Practice Events

The PPGIS event organized in May 2016 targeted mainly the institutional stakeholders identified in the previous phase of project implementation while the event held in December 2015 was addressed directly to the local community.

In both cases, the preparation started several weeks earlier. A full information package, including a Draft Agenda, an Information Note and a Registration Form- was sent by email. In addition, most were contacted by phone, while a press release widely published in the local media announced the events.

Particular care was taken to hold the events at easily accessible venues. In December 2015, the event was held at the Community Center which facilitated the participation of nearby inhabitants, since it was located in the centre of Nea Karvali. In May 2016, it was the regional branch of the Technical Chamber of Greece that hosted the event, a way to affirm its support for the concept of the Observatory.

Catering services were provided and attention was paid for ensuring comfortable conditions for the guests and Speakers.

During the event, each participant signed the relevant list and received a kit with available communication material.

6.5 Follow-up activities and wider dissemination

The Observatory has started enriching the offer of public services of the Municipality, an early achievement that relied on its ability to cooperate with the other Municipal Services and provide basic spatial layers that are used in daily operations.

There was a broad consensus that the wealth of environmental and spatial planning information and indicators will contribute to dispel erroneous perceptions, feed evidence-based policy making at local level and, at the same time, test the relevance and value of the information and the indicators to the local context and real life situations.

The Observatory was seen as a web based channel that would harness the demand of residents to have direct, real-time interaction with their local authority into building a more participatory decision making process and finding balanced and effective solutions.

Through the Observatory, the Municipality will also be able to deal with specific issues with significant local relevance and impact such as the redefinition of the shoreline in the case study area, contributing thereby to the resolution of longstanding problems.

This approach requires an orientation towards systemic thinking on the part of all involved which implied that interinstitutional cooperation would have an essential component of daily operations.

Surveys conducted in the previous stages of the project by the Kavala Municipality Mare Nostrum team on an extensive sample of stakeholders showed that such a will existed and the question now was to determine the terms and modalities that could contribute to the real life implementation of this cooperation.

It was recognized that in order to turn this positive attitude into effective and sustained action with real impact there was need for the Municipality to reassert its commitment, and dedicate some, mainly human, resources while stakeholders had to accept the need to make an effort to share information in a timely fashion.

A first step in this direction is the Cooperation Agreement that was prepared and presented to Stakeholders and Participants.

Stakeholders agreed to introduce it in their decision making instances in the coming period and upon approval it will represent the main document that will validate the collaboration.

In the meantime, the Municipality with the support of DUTH will continue to feed the Observatory with data while the information material produced and distributed during the event will be used in communication campaigns to reach the wider public.