PORTODIMARE

2nd training workshop – report May 2020

INTRODUCTION

The 2nd training workshop of the ADRION project PORTODIMARE (geoPORtal of TOols & Data for sustaInable Management of coAstal and maRine Environment) was organised by PAP/RAC, project partner, with assistance of the Lead Partner (LP) Regione Emilia-Romagna (RER) Direzione Generale Cura del Territorio e dell'Ambiente and Morsko Dobro from Montenegro as Communication partner on May 19th and 20th via videoconference (*GoToMeeting* platform via EUSAIR Stakeholder platform) due to the COVID-19 crisis and related travel restrictions.

The agenda (see **Annex 01**) foresaw two days of work:

- day 1 (May 19th) dedicated to an overview of GAIR, along with practical demonstration of the use of Geoportal and selected modules by partners from the testing sites; and

- day 2 (May 20th) dedicated to discussion on the Geoportal maintenance and transferability plan; Geoportal practical guide; and strategies and action plans for the countries.

The participation to the 2nd training workshop was very satisfying: 47 participants from all Project Partners (PPs) s - each PP had at least one representative attending the meeting (see **Annex 02**).

PORTODIMARE 2nd training workshop – Day 1

WELCOME AND INTRODUCTION

Ms. Olga Sedioli, on behalf of the project lead partner – RER, together with Mr Marko Prem from PAP/RAC, opened a workshop by welcoming all the participants. They emphasized the importance of development of the GeoPortal in the Adriatic-Ionian region and Project in general, specifically in context of transboundary cooperation to support the management and planning of coastal and marine areas. The welcome continued with introduction of the workshop's objectives and its agenda. The workshop's aim was that all partners better understand the Geoportal and the modules, and their relevance to ICZM-MSP process. The main objectives of the meeting were to:

- Assist implementation of pilot the actions;
- Present and discuss the progress on testing the Geoportal (GAIR) and related Modules on the testing sites;
- Promote co-learning and coordinated improvement of the modules; and
- Plan the next steps

SESSION 1 - An overview of the GAIR

Mr Stefano Menegon (CORILA-ISMAR) and Mr Alessandro Sarretta (CORILA–IRPI) presented the features and functions of the GAIR Geoportal. The Geoportal was presented with its basic (stable) functionalities and "new" functionalities (with some minor developments ongoing): case studies, modules and GeoDataBuilder. All functionalities of the GAIR were presented via shared screen: data, maps, case studies/modules. Each of these modules was presented in detail: CEA & MUC; PARTRAC; AZA; SSF (&MSF). Finally, GeoDataBuilder was presented as a tool to reuse in the case studies some layers already available in the GAIR and to create simple expressions (selection of attribute fields, addition, multiplication ...).

Some additional clarifications, asked by participants, ensued: in order to run the model, the input data should be prepared "outside" the GAIR, but respecting specific characteristics: e.g. same grid, resolution, projection etc. In other words, in order to GeoDataBuilder perform well all layers should be on the same level. All additional explanations will be added in the documentation of the Geoportal. Module developers promised to provide all the needed assistance so that modules run smoothly.

SESSION 2 - Practical demonstration of the use of Geoportal and selected Modules

Partners from testing areas explained which module(s) were tested and how the testing was implemented. In particular, they focused on the planning issues related to the site, which type of data was collected, how they have used the portal, and what are the results so far. Also, they elaborated on the main gaps and what is still to be done by the end of the project.

Each presentation (**Annex 03**) was followed by a short discussion to define strengths and difficulties encountered during testing of modules; gaps related to testing sites (what should be improved) and alike.

T2.2 Threats to coastal and marine biodiversity – Vrsar and Funtana Islands

Ms Latinka Janjanin from ZPUIZ presented the application of MUC and CEA modules on Vrsar and Funtana islands in Istria County (Croatia). The aim was to determine the negative and/or positive impacts of coastal areas on the marine protected area (islands Vrsar and Funtana are situated close to the coastline = importance of Land-Sea Interactions - LSI). The implementation went through several phases: (i) collection of existing relevant environmental data; (ii) mapping marine and terrestrial habitats, (iii) recognition of important, rare and endangered marine and terrestrial habitats and species (according to Habitats Directive), and also invasive species; (iv) analysis of coastal uses and pressures; (v) analysis of threats to coastal and marine biodiversity; and finally (vi) testing of MUC and CEA modules. The major **strengths** of this study were that the data were made fully operational for the data management, with creation of metadata and processing of maps; and the fact that GeoDataBuilder has been released as a necessary tool for module testing. The major **gaps** were that the manual is available only online and not yet completed, and also there is a category for terrestrial habitats missing. The final results of the study are expected around June 2020.

T2.3 Evaluating sea uses sustainability in Emilia-Romagna marine area

Ms Luisa Perini presented the RER's goal to test the GAIR and its modules to analyse conflicts and synergies among sea-uses and cumulative impacts, for enhancing sustainability of sea uses and environmental quality of the maritime area. The modules MUC, CEA, PARTRAC and AZA were applied. In agreement with CNR-CORILA (Project Partner 2) RER decided to use the Geoportal for testing the technical approach defined at national level; using the MSP tools for analysis–improving analysis capacity on present and future trends; and, finally, to transfer the 'know-how' developed in PortoDiMare to the National Technical Committee (NTC) for the elaboration of Adriatic MSP plan. The main findings/considerations of modules application in T2.3 are that: GAIR is ready to support MSP planning in the Adriatic-Ionian Sea; several up to date information concerning environmental aspects/sea uses are now accessible; and that the most important tools for MSP-analysis are now operational and can give a big support to RER-area and Adriatic planning process. Future

goals are to complete the analysis including the re-run of CEA and MUC with reference to the planning sub-units; improve the planned scenario –complete strategy and measures; and to transfer the methodology to the national level.

T2.4 Spatial conflicts among human activities as well as with conservation priority areas in Western Greek waters - Kefalonia Island

Ms Maria Kikeri from HCMR presented the application of SSF+MSF to map the fishing pressure for small and medium scale fisheries in the area of Kefalonia Island (Western Greek waters). Other objectives of the T2.4 were to identify marine areas suitable to host aquaculture activities and where eventually prioritize its development (AZA module); to assess and map the Cumulative Effect of human-derived pressures in general but also for specific environmental drivers as *Posidonia oceanica* meadows, *Monachus monachus* and *Delphinus delphis* (CEA module); and to use these modules as tools for marine spatial planning. The major **strength** of application of these modules was an opportunity for data collection and running the modules, while the major **gaps** identified were "bugs" in the system and the fact that not all modules were operational in GAIR (in this case only CEA was done within the Geoportal).

T2.5 Abruzzo coastal evolution mapping

The main aim of the T2.5, presented by Ms Daniela San Lorenzo from Abruzzo Region, was to carry out the mapping of the coastal evolution of the coastal stretch of Abruzzo Region (Central Italy), in order to evaluate the effects of anthropogenic pressures on coastal erosion within the 1956-2018 period. The needed time resolution for this task is of order of 20 years, so that erosion hot spots along the regional coasts can be identified; to check the effectiveness of the coastal defences; and to define the priority order of future interventions. The mapping of the regional coastal evolution (1956, 1976, 1997, 2018) started by finding aerial or satellite imagery and georeferencing the images, which were then used to extract the instantaneous shoreline. This analysis revealed the local shoreline displacements for the temporal windows 1956-1976, 1976-1997, 1997-2018, and relevant layers were uploaded to the Geoportal. Mapping of the man-made structures (coastal defence, harbour structures, river works, etc…) for the different time windows (1956-1976, 1976-1997, 1997-2018) are to be uploaded to the Geoportal. All this data can be used along with the other information in the GAIR to test either CEA or MUC module.

T2.6 Spatial conflicts among existent uses and legal regimes on sea-coastal strip along Slovenian coast

With reference to the Slovenian national MSP process, two modules were implemented in the testing site as presented by Ms Martina Bocci and Mr Slavko Mezek from RRC Koper: **CEA** to analyze the overall impact of coastal and maritime activities, the impact of the maritime transport sector, and other specific analysis to be defined from the results of the overall impact analysis; and **MUC** to analyse the conflicts between maritime traffic and small scale fisheries, the conflicts between beach tourism (bathing waters) and tour boat sector, and the conflicts between natural protection and tour boat/leisure boating sectors.

CEA and MUC modules were successfully tested, with 12 datasets uploaded to the GAIR. Most impacting pressures were identified. These pressures are in line with the knowledge framework for the area, derived from research and monitoring data and documented in scientific literature. The analysis confirmed the issues related to the maritime traffic in the area in terms of environmental impact and generated conflicts. The impact exerted by leisure boating was also highlighted.

The **next step** needed to complete this case study is to complement the conflict analysis with assessment of conflicts that involve marine protected areas.

T2.6 Testing GAIR functionality, CEA and MUC tools in the Bosnia and Herzegovina case study

Ms Azra Ćulov from CETEOR presented the data uploaded to the Geoportal: coastline of Bosnia and Herzegovina; mapping of the current location of aquaculture farms (mussels, other molluscs, finfish, seaweed); flood risk management ; land based activities- polluters; ZTB current location and potential one and characteristics (definition of which activities are banned). River basin layer is missing.

Partners from CETEOR hope that by the end of the project they will manage to run the CEA and MUC modules, although they are aware of not having much input data. They also hope to prepare the report on spatial conflicts among existing uses and legal regimes on coastal strip along Bosnia and Herzegovina coast, and to present this report to stakeholders in B&H.

T2.7 Oil spill coastal grounding response – Apulian seashore

Ms Raffaella Matarrese presented the implementation of the “Coastal vulnerability to oil spills” module in Apulia region. Stress-test was carried out to validate the potential of the GEOPORTAL module system deriving from Adriatic Atlas, and to support the Civil Protection and Operational Centre in apt response in case of oil spill grounding and coastal pollution.

One oil-spill simulation and consequent GEOPORTAL–supported tactics to conduct oil-spill grounding and to evaluate oil-spill contingency plans at coasts were conducted within a specific training-site along Apulian seashore, with the participation of chief commanders, partners' observers and Civil Protections' volunteers.

The GAIR application concerning the "Coastal vulnerability to oil spills" is a follow-up of the HAZADR-ATLAS system. Oil spill products in GAIR platform are classified within the 'pressure- impacts' and 'Maritime transport and traffic flows' categories.

In PORTODIMARE, the coastal vulnerability to oil spills has been computed for Adriatic and Ionian regions, with all data provided by ISPRA (ports, urbanization, morphology, protected areas). The 12 maps in the GAIR have been built summing the values of Comadex indexes for each month of 2019. Comadex (COastal MArche region Daungerousness EXposure) index estimates vessel's dangerousness. With this index it is possible to evaluate the most dangerous routes in the Adriatic Sea.

It was concluded that the GAIR is an important tool to support decisions (DSS) and plan interventions in case of oil-spill accident.

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Very good progress has been made by all partners in testing the GAIR. A number of modules were successfully tested what proved that GAIR is operational and provides its functions as designed. Some gaps and difficulties detected by the testing partners will be overcome in the following weeks. Assistance will be provided to those that have difficulties in testing the modules so that the projects can be finalised on time, and that inputs for the outputs under T2.8 will be successfully drafted, too.

PORTODIMARE 2nd training workshop – Day 2

3. SESSION 3 – Technical meeting (T2.8 activities)

Ms Baučić, PAP/RAC consultant, presented the state-of-the-art regarding activities related to the 2.8 Activity (Geoportal use, maintenance and transferability), with aim to ensure the widest use and transferability of the results.

T2.8.1 Geoportal maintenance and transferability plan

The proposed structure of this output was presented: from chapters on Introduction and objectives; About Portodimare; GAIR and its modules; Testing and results; and finally two last chapters on GAIR maintenance and Transferability plan.

The chapter on **GAIR Maintenance** should reflect whose responsibility it is to maintain it, how to establish links with data providers between the GAIR host (Emilia-Romagna Region RER) and other Adriatic-Ionian regions/countries (MoU/contracts, that should specify data sharing policy and alike; maybe a 'political decision at EUSAIR level). Also software modules/tools maintenance and IT infrastructure (hosting and administrating GAIR) should be clarified. What was found crucial was also the question of which political body would endorse the GAIR so it becomes a permanent portal in the AIR. A sort of commitment would be needed from the countries to provide data.

The chapter on **Transferability** should clarify how GAIR will be transferred out of the Portodimare partnership to become a central portal for ICZM/MSP in the Adriatic –Ionian region:

- Transferability/promotion it within ADRION programme, so new and current projects (HARMONIA, IMPRECO) in the region can use the GAIR and update it. This was understood more of a technical question;
- The role of EUSAIR to guarantee/provide political support, related to procedures (Agreement, MoUs);
- Transferability within each country to new/relevant institutions that collect/hold relevant data so to support the MSP process;
- Transferability/promotion outside of AIR; other regional seas of Europe, and within the Mediteranean in particular (through the Barcelona Convention UNEP/MAP system; its National Focal Points-NFP, including PAP/RAC NFPs (at COP conferences, NFPs meetings; a brochure could be prepared, presentation at the meetings)

It was also suggested that this output should address the modules and GAIR, and that there is no need to have a chapter on case studies.

T2.8.2 Geoportal Practical Guide

This output will be based on manuals provided by the developers of the Geoportal and its modules. It is to be initiated after this training workshop.

T2.8.3 Strategies and action plans for the countries

The first two "general" chapters of this output are prepared by PAP/RAC: one on Portodimare project and other on Maritime Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM) process and planning steps. Other chapters (MSP and ICZM in PP country, testing area, plans and recommendations for MSP and/or coastal management plans) are to be prepared by Country Project Partners - Croatia- ZPUIZ; Greece- HCMR; Italy- RER DGCTA, and Slovenia- RRC Koper, with assistance of PAP/RAC (if needed).

During the discussion, the lead partner reminded that the strategies and action plans are not simply a deliverable, but they have the same weight as the Geoportal. Specific provisions on finalization of outputs (i.e. the Implementation manual) were sent by the lead partner to all project partners, and all the outputs should match these provisions. A question was asked by Ms Janjanin about potential obstacles in developing the Strategy, since the ZPUIZ is a sub-national institution, and strategies are a national matter. Lead partner clarified that sub-national project partners should hence work on Action plans. This is explained in the Implementation manual.
It was concluded that PAP/RAC would adjust the outline of T 2.8.3 output so to reflect that the document is an Action Plan aiming at providing support to regional/national ICZM and in particular MSP process. The role and status of project partners drafting these outputs varies from country to country (some are the administration from the regions for example, the other are agencies or research institutions that are not closely linked with the administration responsible for MSP in the country). Therefore, these specificities would require a flexible approach when presenting the conclusions and recommendations in the report. These would require differentiated approach in communication and coordination with stakeholders.

Finally, a road map of 2.8 tasks was presented – set to 30th June for both summary about testing on Pilot sites, and finalized manuals.

ANNEX 01 – Agenda of the meeting

INTERREG ADRION PORTODIMARE PROJECT

2nd Training Workshop
19-20 May 2020

On-line (via EUSAIR Stakeholder platform)

Main objectives

- Assist implementation of pilot actions
- Present and discuss the progress on testing the Geoportal and related Modules (GAIR) by the testing sites
- Promote co-learning and coordinated improvement of the modules
- Plan the next steps

Agenda

Day 1: Tuesday, 19th May

9.30 – 9.45	Welcome and Introduction Recall project objectives and perspectives, the importance and the role of Geoportals and tools in the ICZM-MSP process, need for co-learning and coordinated improvement of the modules, resume of the work done, work to be done (Olga Sedioli, Marko Prem)	
9.45 – 10.15	**An overview of the GAIR** *The T1 lead partner will remind us on the Geoportal and its modules, structure, capacity, tools, functioning and alike.*	Stefano Menegon and Alessandro Sarretta, CORILA-CNR
10.15	**Practical demonstration of the use of Geoportal and selected Modules (GAIR) by the Testing sites** *Partners from the Testing sites will explain which module(s) were tested and how the testing was implemented. In particular they will focus on the planning issues related to the site, which data was collected, how they have used the portal, and what are the results so far. Also, they will elaborate on the main gaps and what is still to be done by the end of the project.* . *Each presentation will be followed by a discussion in order to define strengths and difficulties encountered during testing as far as the Geoportal/Modules functioning; gaps related to testing sites (what should be improved) and alike*	
10.15 – 10.50	T2.2 **Threats to coastal and marine biodiversity** – Vrsar and Funtana Islands	Latinka Janjanin, ZPUIZ

	Modules: MUC and CEA	
10.50 – 11.25	T2.3 **Evaluating sea uses sustainability in Emilia-Romagna** - Emilia-Romagna marine area Modules: MUC, CEA, PARTRAC, AZA	Luisa Perini, RER-DGCTA
11.25 – 12.00	T2.4 **Spatial conflicts among human activities as well as with conservation priority areas in Western Greek waters** - Kefalonia Island Modules: SSF+MSF, CEA	Maria Kikeri, HCMR
12.00- 12.30	Break	
12.30 – 13.10	T2.5 **Abruzzo coastal evolution mapping** – Abruzzo coastal area Modules: Coastal evoloution mapping	Daniela San Lorenzo, Service OOMM
13.10 – 13.45	T2.6 **Spatial conflicts among existent uses and legal regimes on sea-coastal strip along Slovenian coast** – Slovenian coast Modules: CEA, MUC	Slako Mezek, Martina Bocci, RRC Koper
13.45 – 14.30	**Spatial conflicts among existent uses and legal regimes on sea-coastal strip along Bosnia and Herzegovina coast** Presentation of the data uploaded to GAIR	Azra Ćulov, CETEOR Sarajevo
14.30 – 15.00	T2.7 **Oil spill coastal grounding response – Apulian seashore** Module: Coastal vulnerability to oil spills	Raffaella Matarrese, CP Apulia
15.00 – 15.30	**Conclusions**	All
15.30	End of Day 1	

Technical meeting and Steering Committee meeting

Day 2: Wednesday, 20th May

9.30	**Technical meeting**	
9.30 – 10.30	Next steps on T2 - Finalisation of Testing area reports; inputs for T2.8 - T2.8 activities: • T2.8.1 Geoportal maintenance and transferability plan • T2.8.2 Geoportal Practical Guide • T2.8.3 Strategies and action plans for the countries *Presentation of the draft contents and in particular the chapters to be completed by the relevant partners (RER DGCTA, RRC Koper, ZPUIZ and HCMR)*	Marko Prem, PAP/RAC Martina Baučić, PAP/RAC external consultant
10.30 – 12.30	**Steering Committee meeting**	

		Lead Partner
12.30	End of Day 2	

ANNEX 01 – List of participants

INSTITUTION	PARTICIPANTS
PORTODIMARE LP - Emilia-Romagna Region, DG Territory and Environment Protection	Marica Landini Paolo Luciani Luisa Perini Olga Sedioli
PORTODIMARE PP02 - CORILA	Andrea Barbanti Niccolò Bassan Agnese Cosulich Amedeo Fadini Giulio Farella Elena Gissi Elisabetta Manea Stefano Menegon Erika Porporato Alessandro Sarretta
PORTODIMARE PP03 Regional development centre Koper	Boštjan Krapež Slavko Mezek Martina Bocci (external expert)
PORTODIMARE PP04 Priority Actions Programme Regional Activity Centre	Marko Prem Ivan Sekovski Martina Baučić (external expert) Mr Frane Gilić (external expert)
PORTODIMARE PP05 Hellenic Centre for Marine Research	Stefanos Kavadas Maria Kikeri Dimitrios Politikos Celia Vassilopoulou
PORTODIMARE PP06 Institute for Physical Planning Region of Istria	Latinka Jajanin
PORTODIMARE PP07 Public enterprise for coastal zone management of Montenegro	Marija Bajković Vojislav Dragnic Aleksandra Ivanović Nemanja Malovrazić Milica Mašanović Gojko Nikolić Milena Raičević
PORTODIMARE PP08 Centre for economic, technological and environmental development Sarajevo	Azra Ćulov Aida Muminović
PORTODIMARE PP09 APULIA REGION - Department of Civil protection	Antonio Lanza Raffaella Matarrese Marco Meggiolaro

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PORTODIMARE PP10 Abruzzo Region - Service OOMM	**Luca Iagnemma** **Giovanna Marrama** **Daniela San Lorenzo** (external expert)
PORTODIMARE PP11 Veneto Region, Environment Directorate - Integrated Water Service and Water Protection Uni	**Marina Aurighi** **Gemma Caterina** **Federica Fiorani** **Daniela Parolo**
EUSAIR Stakeholder Platform	**Michele Giovenali**
HARMONIA LP- National Institute for Oceanography and Experimental Geophysics	**Marina Lipizer** **Elena Partescano**
Università di Bologna	**Elisabeth De Maio**

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ANNEX 03 - PRESENTATIONS

The Geoportal for the Adriatic-Ionian Region GAIR

Emilia-Romagna region
CORILa

Alessandro Sarretta[1], Stefano Menegon[2]
1 CNR-IRPI
2 CNR-ISMAR

State of implementation of the GAIR

Basic functionalities (stable)

- explore layers
- search / filter
- upload
- describe (metadata, styles)
- view / navigate
- download
- create and share maps
- share / reuse
- registration / authentication

"New" functionalities (minor development ongoing)

- Case studies: explore, customize, run and clone
- Modules: PARTRAC, MUC, CEA, AZA, SSF, MSF
- GeoDataBuilder

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PORTODIMARE Training, on-line, 19-20 May 2020.

Quick view of the main functionalities

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Home page and main menu

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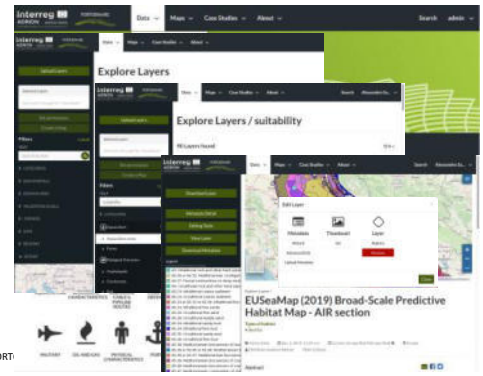
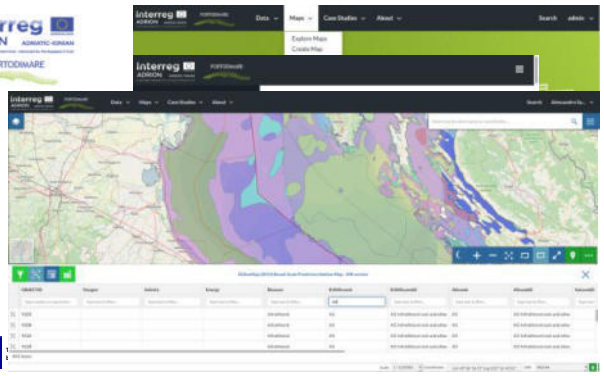
Data:

- Layers
- Documents
- Remote Services
- GeoDataBuilder



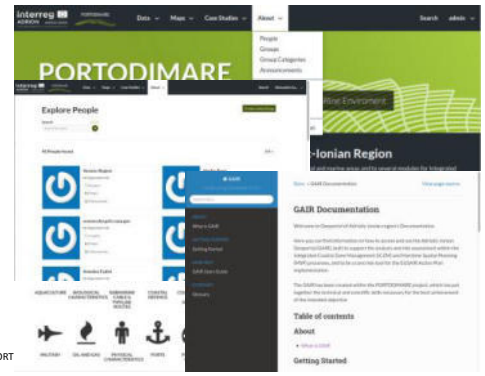
Maps



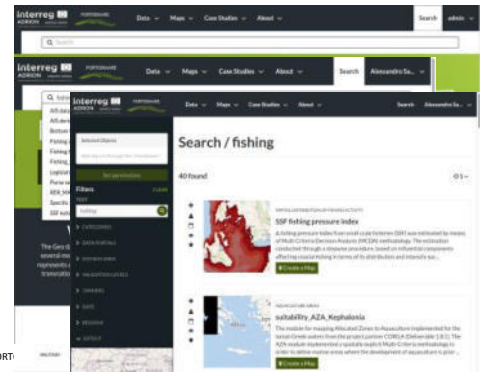
Case studies/Modules

About:

- People
- Groups
- GAIR Documentation

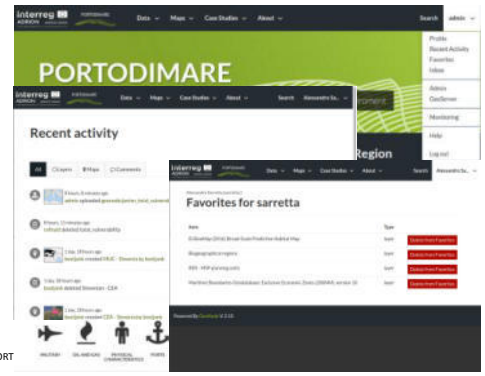


Search bar



Admin:

- Profile
- Recent Activity
- Favorites
- Inbox
- Help
- Log out



Example of general workflow

- Find/upload data
  - Describe your layer
  - Improve metadata
  - ...
- Create a map
  - Add resources
  - Style layers
  - ...
- Perform analysis
  - Select a module
  - Select a case study
    - Run default
    - Customize an existing one
      - Select layers
      - Change sensitivities
      - Add existing layers/expressions
        - GeoDataBuilder
      - Run the module
    - Analyse results
    - Share outputs

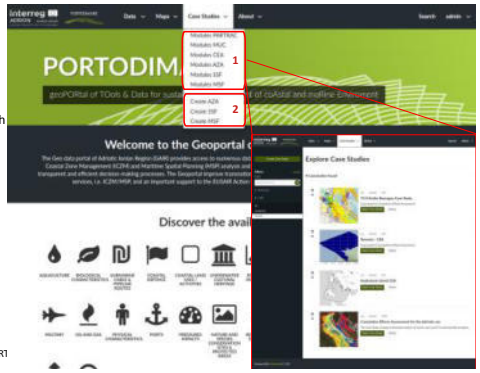
Case Studies & Modules/Tools

Case Studies

- Case study-driven approach
- Each Case Study is related to a specific module/tool
- Case Studies are organized and grouped by module/tool type

Menu options

1. Explore or clone existing Case Study
2. Create a new Case Study from scratch



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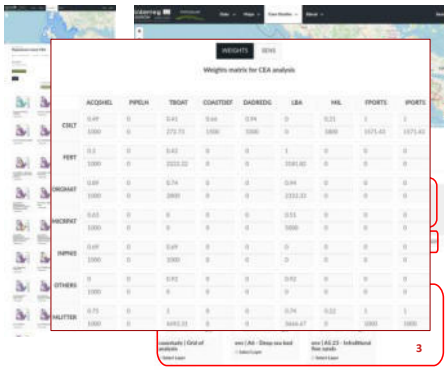
Case Study for CEA (& MUC)

1. Case study characteristics
2. Dialogs to configure input parameters
3. List of input layers:
   Env | Environmental receptors
   Use | Human uses
4. Shortcut to select all input layers
5. Run the Case Study
6. Clone the Case Study

Specific combinations of Use layers and Env layers are possible



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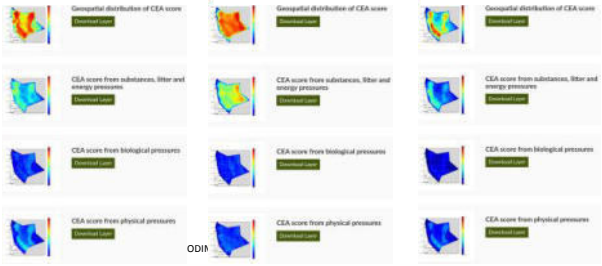
Example of CEA Results: using different layer combinations

Default run
All layers selected (Uses, Envs)

CEA from shipping
1 Use (Shipping density), all Envs

CEA on Essential Fish Habitats
All uses, 1 Env (EFH)

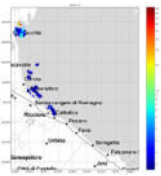


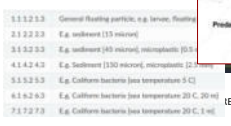
ODIN

PARTRAC

- Adriatic region
- 1 km grid cell resolution
- Multiple sources
- 21 pre-defined scenarios
- 3 types of sea conditions (mean, winter, summer)
- 7 types of particle characteristics

Outputs





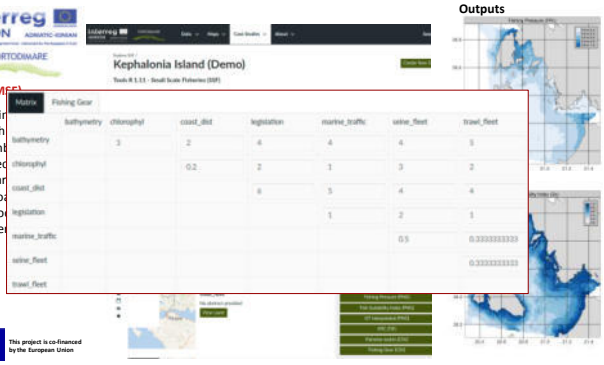
tE Training, on-line, 19-20 May 2020.

AZA

- Graphical interface to select layers (1) and related weights (2)
- Including the layer for spatial constraints (3)
- Output: aquaculture suitability

SSF (& MSF)

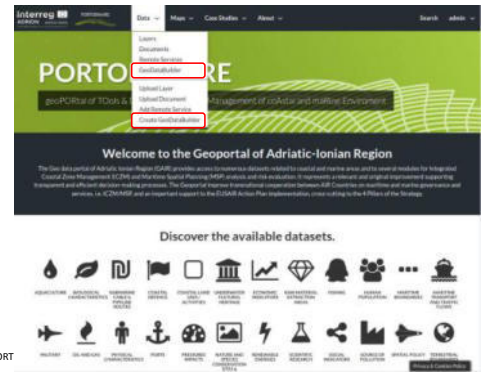
- Defi
- Selec
- Asso



GeoDataBuilder

GeoDataBuilder

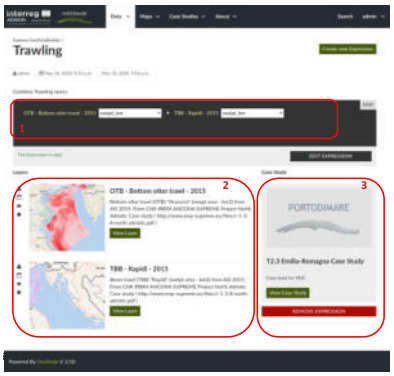
- Tool to reuse in the case studies some layers already available in the GAIR
- and to create simple expressions (selection of attribute fields, addition, multiplication, ...)



GeoDataBuilder example: combine trawling layers

1. Expression:
   "swept_km" from OTB layer
   +
   "swept_km" from TBB layer
2. Preview of input layers
3. Related Case Study

Supported operators



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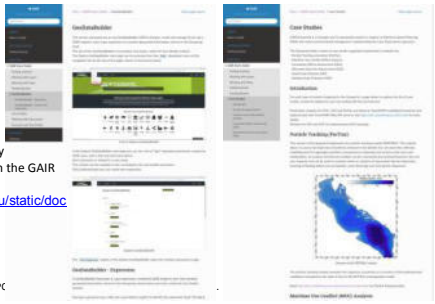
Online documentation

GeoDataBuilder & Case Study documentation is available in the GAIR User Guide:
https://www.portodimare.eu/static/docs/usage/index.html



This project is co-financed by the European Union

THREATS TO COASTAL AND MARINE BIODIVERSITY

Step-by-step towards an ecosystem based approach in Vrsar and Funtana islands (marine NATURA 2000 site HR3000003 Vrsar islands)

(*Activity T2.2, PORTODIMARE PROJECT*)

Javna ustanova
Zavod za prostorno uređenje Istarske županije
Ente per l'assetto territoriale della Regione istriana

mr. sc. Latinka Janjanin, dipl. ing. biol.

This project is co-financed by the European Union

MARINE NATURA 2000 site (HR 3000003)
VRSAR AND FUNTANA ISLANDS

Marine environment:

Sandbanks which are slightly covered by sea water all the time

Reef

Submerged or partially submerged sea caves

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21 islands and cliffs, completely uninhabited area (882,19ha)

This project is co-financed by the European Union

AIM AND STEPS

The aim was to determine the negative and/or positive impact of a coastal areas on the protected marine area (islands situated close by to the coastline)= Land and Sea interaction (Lsi)

6 Steps: *1. To collect existing scientific environmental data relevant for area of casy study*

2. Mapping marine and terrestrial habitats (data were missing)

3. Recognition of important, rare and endangered marine and terrestrial habitats and species (Habitat Directive, CHC), as well as the invasive species

4. Analysis of coastal use (spatial data, different users with a different use) how we could see pressure and threats which could cause a cumulative negative impact on test site

5. Study: Threats to coastal and marine biodiversity. Step-by-step towards an ecosystem-based approach

6. Test the 2 modules: Maritime use conflicts (MUC) and Cumulative Effects Assessment (CEA)

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STEPS RESULTS

1. Collected existing scientific environmental data relevant for area of casy study

1.1. See bathing water quality assesment (annual and individual) – EU Directive on management of bathing water quality No 2006/7/EC)

1.2. CARLIT (Littoral Cartography) method - used to categorize the coastal waters along the Istrian coast
-based on annotating the appearance and abundance of littoral and sub-littoral communities along the rocky shore
-it corresponds to sites with a good ecological status (GES) according to the nomenclature of the WFD

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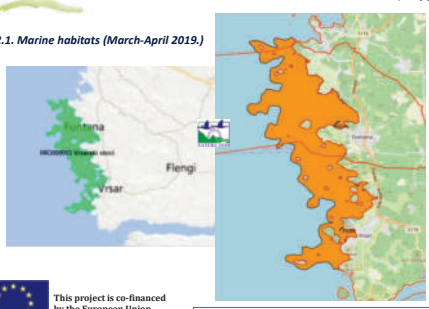
STEPS RESULTS

2. Research marine and terrestrial habitats (mapping is made in PORTODIMARE project)

2.1. Marine habitats (March-April 2019.)



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STEPS RESULTS

2. Research marine and terrestrial habitats (data were missing for test area)

2.2. Terrerstrial habitats (April-November 2019.)

The study brings an overview of the terrestrial habitats and vascular plants (Habitat Directive, CHC)

KARTIRANJE KOPNENIH STANIŠTA U NATURA 2000 POHRUĆJU

ELABORAT

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STEPS RESULTS

3. Recognition of the important and sensitive marine and terrestrial habitats, rare and endangered marine and terrestrial habitats and species, as well as the invasive species

2.1. Marine habitats (March-April 2019.)

- 13 habitat types (CNC)
- 4 habitat types (Habitat Directive)
- 16 protected species
- 1 invasive species

2.2. Terrerstrial habitats

- 7 habitat types (CHC)
- 6 habitat types (Habitat Directive)
- 5 vegetation communities (1 is endemic)
- 177 vasular flora species
- 1 endemic sp., 2 endangered sp., 2 vulnerable sp.,5 strictly protected sp. and 3 invasive sp.

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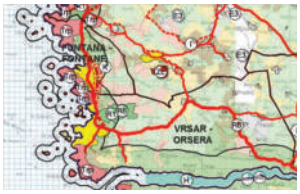
STEPS RESULTS

4. Analysis of coastal use (spatial data, different users with a different use) how we could see pressure and threats which could cause a cumulative negative impact on marine NATURA 2000 site (test site)

Sectors/Sub-sector/Activities:

- ***Coastal Tourism:*** *accomodation*
- ***Ports*** *(nautical/fishing/sports)*
- ***Maritime traffic*** *(leisure boats, fishery boats)*
- ***Sport area*** *(a multi-purpose leisure center, golf)*
- ***Building areas***

Spatial Plan of the of the Istria County, 2016.



STEPS RESULTS

5. Study: Threats to coastal and marine biodiversity. Step-by-step towards an ecosystem-based approach

-contracted in December 2019; deadline for submitting is June 2020.

- analysis of all spatial indicators,
- analysis of legislation in the field of MSP, ICZM, MSFD,
- analysis of pressures and threats with cumulative impacts
- analysis of environmental indicators for good environmental status (GES),
-proposal of guidelines and indicators for future monitoring of the marine and coastal environment

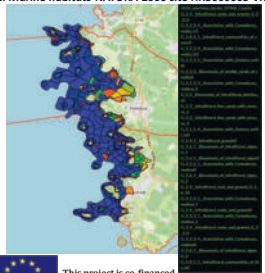
5. Study: Threats to coastal and marine biodiversity. Step-by-step towards an ecosystem-based approach

Threats, pressures and activities with negative impacts on the test area (HR3000003 Vrsarski otoci)		
Rank	**Threats and pressures (code)**	**Description**
M	D03.01	Transportation & service infrastructure - ***Port areas***
M	D03.03	Transportation & service infrastructure - ***Marine construction***
M	E03.01	Urbanisation, residential & commercial development - ***Disposal of houshold recreational facility waste***
M	F02	Use of living resources - ***Fishing and harvesting aquatic resources***
H	F05	Use of living resources - ***Illegal taking/removal of marine fauna***
H	G01.01	Disturbances due to human activities-Outdoor sports, leisure and recreational activities - ***Nautical sports***
M	H03.03	Pollution - ***Marine macro-pollution (i.e. plastic bags, styrofoam-accidental ingestion by marine turtles, mammals, marine birds)***
H	IO1	***Invasive non-native species (plant &animal species)***
M	K02.03	***Eutrophication (natural)***

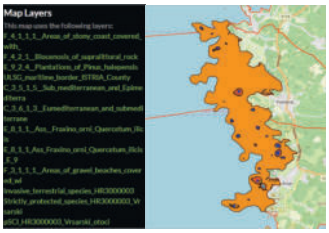
H = high; M = medium

Maps uploaded to GAIR

1. Marine habitats-NATURA 2000 site HR3000003 Vrsarski otoci



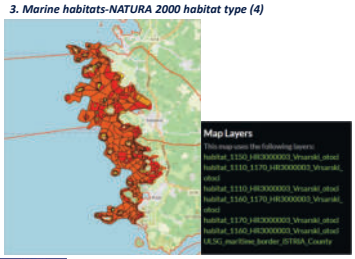
2. Terrestrial habitats-NATURA 2000 site HR3000003 Vrsarski otoci



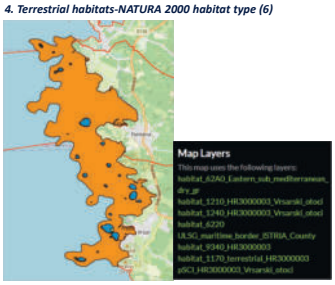
National habitat classifications (NHC)-CROATIA

Maps uploaded to GAIR

3. Marine habitats-NATURA 2000 habitat type (4)



4. Terrestrial habitats-NATURA 2000 habitat type (6)



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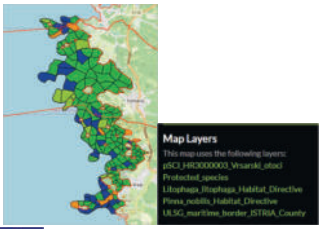
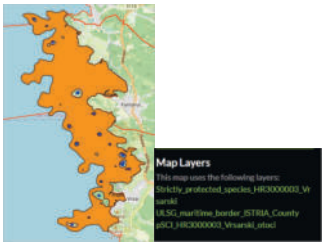
Maps uploaded to GAIR

5. Marine protected species (2)-Habitat Directive (Annex 4) 16 protected species-CRO legislations



6. Terrestrial stricty protected species (5)-CRO legislations (1 endem, 2 -VU, 2-EN)



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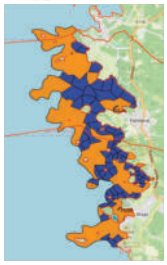
Maps uploaded to GAIR

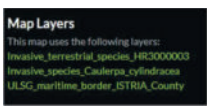
7. Invasive non-native species-marine (1) and terrestrial (3)



Caulerpa cylindracea

Bidens subalternans

Coniza canadensis



Datura stramonium

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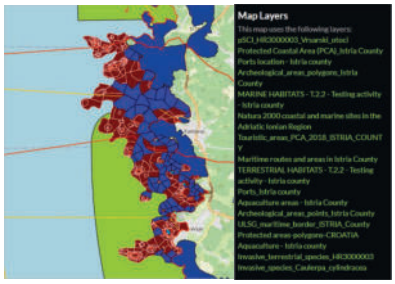
Maps uploaded to GAIR

8. Spatial conflicts and existing conditions-cumulative impacts



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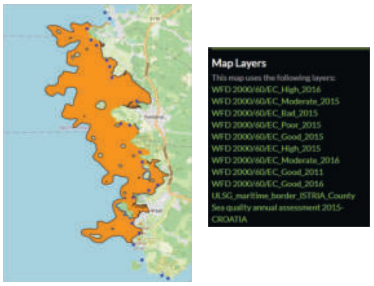
Maps uploaded to GAIR

9. Sea quality annual assesment-Croatia (2015) with results of WFD for Istria county (2011-2016)



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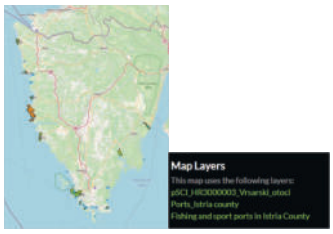
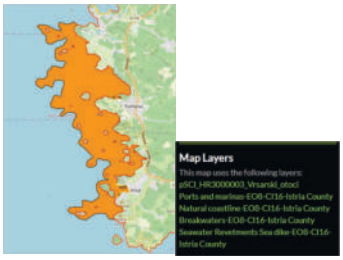
Maps uploaded to GAIR

10. Ports locations - Istria county



11. EO8 Coastal Ecosystems and Landscape Commom Indicator 16-Lenght of coastal subject to physical disturbance due to the influence of manmade structures-Istria County



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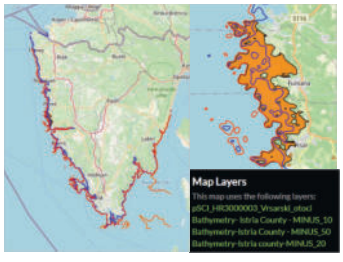
Maps uploaded to GAIR

12. Archeological underwater areas in Istria County

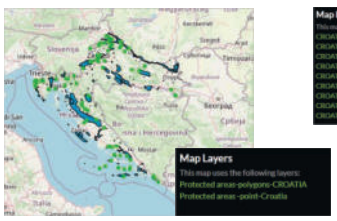
13. Bathymetry - Istria County



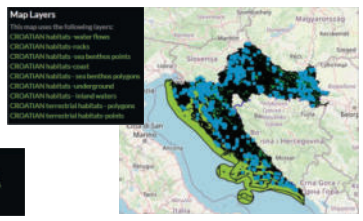
This project is co-financed by the European Union

Maps uploaded to GAIR

14. Protected natural values-CROATIA



15. Croatian habitats (2004.)



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How the modules were tested (steps and results)

- The „geodata builder"-tool necessary to prepare elaborations to be used within modules, has been releaseed last Friday (May 15th)

	Vrsar and Funtana Islands	Emilia-Romagna marine area	Kefalonia Island	Abruzzo coastal area	Bosnia and Herzegovina coast	Slovenian coast	Apulian seashore
T1.6 MUC	Not applicable	Applicable	Applicable*		Not applicable	Applicable**	
T1.7 CEA	Applicable*	Applicable	Applicable*			Applicable**	
T1.8 Aquaculture zoning		Applicable (Mussels only)	Applicable (Finfish only)			Applicable (Finfish only)	
T1.9 Particle Tracking		Applicable	to be confirmed				Only Adriatic part
T1.10 coastal vulnerability to oil spills							Applicable**
T1.11 SSF - Footprint		to be confirmed	Applicable				
T1.12 MSF + SSF/RSF Cumulative effects		to be confirmed	Applicable				

* applicable with some limits (data resolution, etc.)
** data in acquisition
derived from the Application
Interest / request expressed by testing sites responsibles

Functionality of the GAIR (strengths and gaps encountered during testing of the modules)

Strengths:
- Fully operational for the data management, creation of metadata, processing of maps
- The „geodata builder" has been released (a necessary tool for module testing)

Strengths/Gaps:
- The „geodata builder" has been released (a necessary tool for module testing) May 15. 2020.
- Manual is available only online in the GAIR documentation (it is in a good progress state, but not completed yet)

Gaps:
- Manual -pdf. format (printing form)
- Missing a category for terrestrial habitats (only bentic and pelagic)

What is still to be done by the end of the project?

-The final results of the Study -June 2020 - pressures and threats ⟶ cumulative impact
- further monitoring of testing site
- proposal for GES

- test the modules in Geoportal (MUC, CEA)

- Strategies and action plans on marine NATURA 2000 site HR3000003 Vrsar islands of the Geoportal

Case study Emilia-Romagna Evaluation of sea uses sustainability in Emilia-Romagna (T2.3 activity)

LP: L. Perini; P. Luciani.
PP2: A Barbanti; G. Farella; S. Menegon S; E. Porporato

This project is co-financed by the European Union

Main Aims of the 'Case Study'

- **With reference to the application form:** our goal is to test the **GAIR** and **modules** in order to analyse conflicts and synergies among sea-uses and cumulative impacts, enhancing sustainability of sea uses and environmental quality of the maritime area

Modules that were expected to be applied:

- **CEA: Cumulative Effects Assessment**
- **MUC: Maritime Use Synergy and Conflict Analysis**

Furthermore we tested:

- **PARTRAC:** Particle Tracking simulation
- **AZA :** Allocated Zones for Aquaculture

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Emilia-Romagna coastal and marine area

- 130 Km of coastline; 110 km of low sandy beaches; 60% protected with coastal defence
- site of **Man & Biospfere reserve**
- 14 coastal municipalities
- over 400% urbanization during last 70 years
- **26 ports**/harbours/marinas; 1 of national importance
- **coastal tourism** contributes to the 7% of regional GDP (Gross Domestic Product)
- RER is the **major italian producer of shellfish**
- **52 oil&gas platforms** (43 within 12 Mn) – some no more productive

Area of strategic importance and conflicts in a delicate equilibrium between nature and development

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MSP exercise in Emilia-Romagna
preface

Emilia-Romagna region, as well as the other Italian regions facing the sea, has been involved into the National Technical Committee (NTC) for the elaboration of Adriatic MSP plan; with particular regards to the E-R area

In agreement with CNR-CORILA (PP2), that also scientifically supports the NTC, it was decided to use PORTODIMARE GEOPORTAL both for:

- **testing the technical approach** defined at national level
- **use the MSP tools for analysis** – improving analysis capacity on present and future trends

Finally to transfer the 'know-how' developed in PortoDiMare to the NTC

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MSP exercise in Emilia-Romagna: **steps and main activities**

Testing the **GAIR** for the **knowledge framework updating**
- ✓ **Updating of data within GAIR** - processing
- ✓ **Metadata** implementation
- ✓ **Maps elaboration** according to the NTC procedures (14 main maps)

1

2

Set up the **planning process** - managed scenario (method Corila)
- ✓ Definition of a planning Vision
- ✓ Clustering in planning -units with different vocation

Testing **MSP tools**
- ✓ CEA
- ✓ MUC
- ✓ PARTRAC
- ✓ AZA

3

4

Elaboration of a **draft of MSP plan**
- ✓ Reanalysis of panning-units on the base of output of the tools
- ✓ Drawn of strategies and measures

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1 - Testing the **GAIR** **knowledge framework development**

The knowledge framework is based on previous and **new recovered or updated** information and studies on the main topics:
- Physical and environmental characteristics of the area (e.i. area of **sighting of Tursiops 2018**)
- Sea uses – present and forecasting (new data on **tourism 2019/aquaculture 2020**)
- Land-sea interaction (new data on **coastal vulnerability & risks – water quality**)

For the analysis the NTC has defined a set of **14 crucial maps** to be processed

1: Main administrative boundaries	2:Transports: Ports;routes; etc:	3: Energy: O&G plaforms, sealines	4: Acquacolture; exixting and planned	5; Fishing; capacity and fishing effort	6: Coastal risk and marine aggregates	7 Tourism: presences; infrastructures
8: Protected areas	9:forecast of landscape plans	10 Military areas/ war residues	11: Research: areas	12 Map of bottom habitats	13:Distribution of pelagic target species	14 Distribution of synthetic indicators

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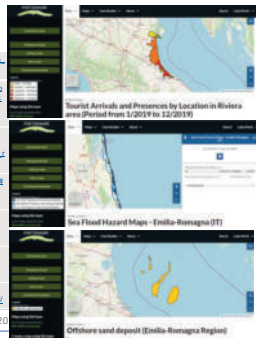
PORTODIMARE 2st Training Workshop – 19-20 May 2020

1 - Testing the **GAIR** **Maps processing**

Check of the information in charge to the regional government and update of spatial data and metadata

Tourism	Arrivals 2019	https://www.portodimare.eu/layers_ext/geonode:Tourism_2019_Emilia_Romagna_Region#/
Aquaculture	2020 shellfish farms shellfish farms inland Artificial reefs	https://www.portodimare.eu/layers_ext/geonode:_2019_shellfish_farms_in__ezfyc#/ ; https://www.portodimare.eu/layers_ext/geonode:shellfish_farms_in_emili_t9kk ; https://www.portodimare.eu/layers_ext/geonode:artificial_reefs#/
Coastal risks (according to EU 2007/60)	Sea storms impacts Beach Erosion Sea Flood Hazard Maps	https://www.portodimare.eu/layers_ext/geonode:Localita_Colpite_2019_bis#/ ; https://www.portodimare.eu/layers_ext/geonode:Beach_Erosion#/ ; https://www.portodimare.eu/layers_ext/geonode:flood_hazard_and_risk_maps_e_r_1#/
Offshore sand stocks	Offshore sand deposit Grant areas	https://www.portodimare.eu/layers_ext/geonode:grant_areea_offshore_san_vrcjs# ; https://www.portodimare.eu/layers_ext/geonode:Giacimenti#/
Stoking areas for dredged sediments (dlgs 152/2006)	Dumping and disposal areas	https://www.portodimare.eu/layers_ext/geonode:dumping_site#/
Military zone	Military practice areas (IT) Danger zone	https://www.portodimare.eu/layers_ext/geonode:military_practice_areas#/ ; https://www.portodimare.eu/layers_ext/geonode:danger_zones#/
Environmental monitoring	Protected marine habitat Tursiop sighting	https://www.portodimare.eu/layers_ext/geonode:biological_conservation_zones#/ ; https://www.portodimare.eu/layers_ext/geonode:tursiop_sighting_emilia__eugce#/



PORTODIMARE 2st Training Workshop – 19-20 May 2020

1 - Testing the **GAIR** **Maps elaboration**

to **underline** the **big support of the GAIR** in **recovering data**, necessary for the maps, coming from National/EU Institution and from Research.
- **Energy** (Italian ministry)
- **Traffic** (national- international sources)
- **Fishing** effort (science)
- **Protected areas** – (regional/national institutions)
- **Physical** and **environmental aspects** (science & national institutions)

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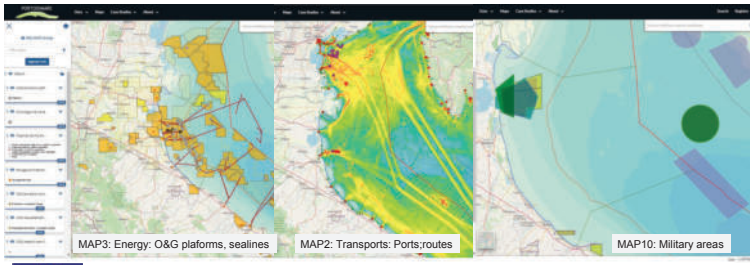
PORTODIMARE 2st Training Workshop – 19-20 May 2020

1 - Testing the **GAIR**

Examples of Maps



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https://www.portodimare.eu/maps/?limit=20&offset=0&domain_area__identifier__in=emilia_romagna_marine_area

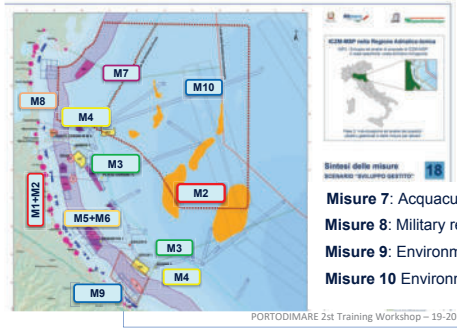
2 - **Planning Process**

Following NCT planning methodology proposed by CNR-IUAV-Corila

Focusing the planning vision over a (medium-long time period)	Coastal and maritime **tourism as reference sector** for the maritime economy in Emilia Romagna
Main sectors of sea uses	**Specific objectives-** they needs measurable indicators when possible
Tourism	OS.1: Improve the tourist use of the coasts (seaside tourism) through beach maintainance; nourishment and defense against flooding
Energy	OS.2 - Allow the exploitation over time of methane deposits already authorized in a safe way for man and the environment, reducing conflicts and increasing synergies with other sectors of the sea economy OS.3 - Promote the generation of energy from renewable sources at sea (wind source,ecc)
Fishing	OS.4 - Promote the sustainable and regulated expansion of small-scale fishing OS.5 - Review the regulation of bottom trawling, taking into account of the effects on the seabed, of the areas with EFH, of the sustainability of the exploitation of the stocks
Acquaculture	OS.6 - Promote the sustainable development of aquaculture activities in synergy with the other uses
Environmental protection	OS.7 - Consolidate the system existing protected areas and conservation measures, within a framework of overall ecological coherence and in synergy with other present uses. OS.8 - Maintaining / achieving the environmental objectives of WFD, MSFD and H&BD
Military uses	S.9 - Allowing the maintenance of the military functions of some areas, reducing their conflicts with other present uses

2 - **Planning Process**

Menaged scenario from Ritmare project



Going back to the results of the Ritmare project - **set of proposal measures**

Misures 1 e 2: Coastal protections

Misure 3: O&G decommissioning

Misure 4: Renewable energy

Misures 5 e 6: Shellfish &trawling

Misure 7: Acquaculture

Misure 8: Military restrictions

Misure 9: Environmental protection – ZTB offshore RN

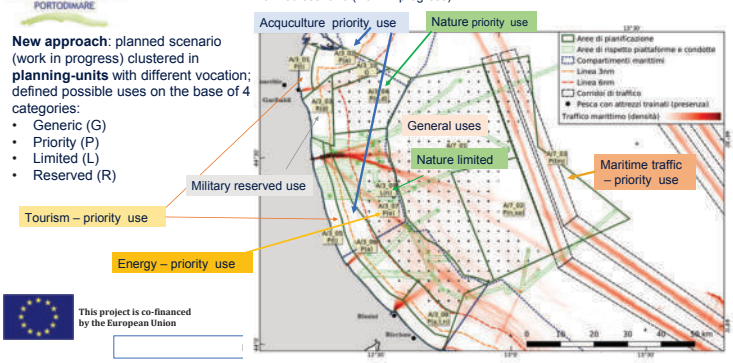
Misure 10 Environmental protection form mammals & turtles

2 - **Planning Process**

Planned scenario (work in progress)

New approach: planned scenario (work in progress) clustered in **planning-units** with different vocation; defined possible uses on the base of 4 categories:

- Generic (G)
- Priority (P)
- Limited (L)
- Reserved (R)



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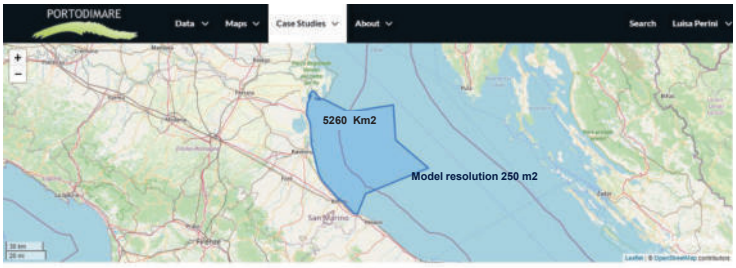
3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

Present status



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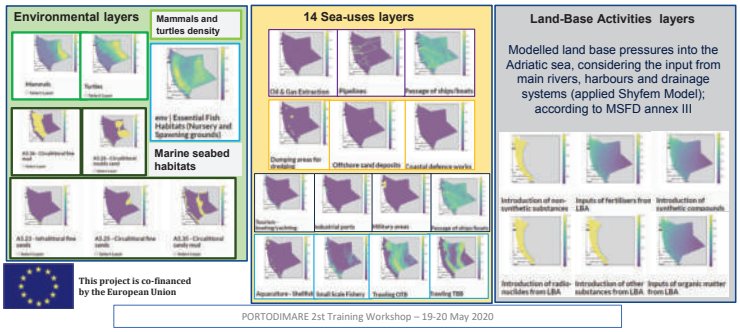
T2.3 Emilia-Romagna Case Study

3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

Considered Components

https://www.portodimare.eu/casestudies/34/



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3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

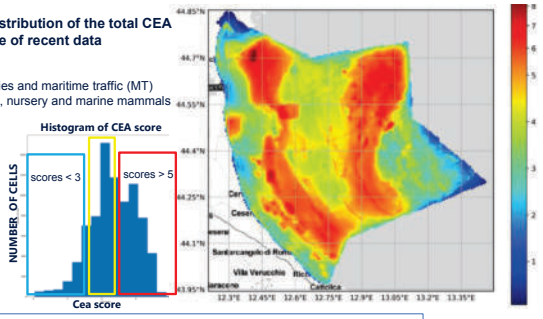
Main results – spatial information

main result is the spatial distribution of the total CEA score - Updated on the base of recent data

RED HIGH CEA scores > 5
Areas where high trawling activities and maritime traffic (MT) impacting on the seabed habitat, nursery and marine mammals and turtles;

Medium CEA scores : 3-5 (**GREEN** to **ORANGE**)
Extensive area (high number of cells) multiple uses impact

Low CEA scores : 1-3 (**BLUE** to light **GREEN**)
Tourism –SSF and MT affecting seabed and nursery



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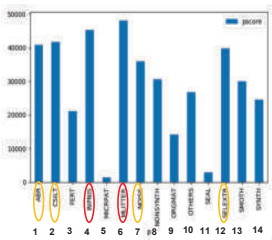
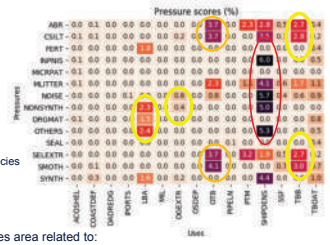
3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

Main results – 14 pressures



1 Abrasion
2 Change in siltation
3 inputs of fertilizer
4 non indigenous species
5 microbial pathogens
6 marine litter
7 noise
8 synthetic components
9 inputs of org. matter
10 other substances
11 sealing
12 selective extraction of species
13 smoothering
14 synthetic components



Major cumulative pressures area related to:
Maritime transport
Trawling (OTB-TBB)
Land base activities

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3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

Main results – detail on spatial information

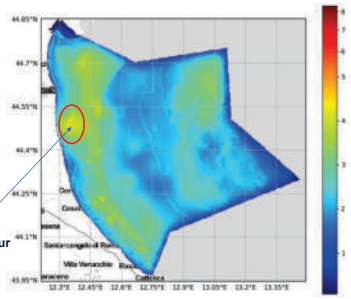
CEA score from substances, litter and energy pressures with reference to the MSFD (Annex III):

Substances, parameters Inputs of **fertilizers** and other **nitrogen** and **phosphorus-rich substances**, Inputs of **organic matter**, Introduction of **non-synthetic substances** and compounds, Introduction of other substances, Introduction of radio-nuclides, Introduction of synthetic compounds

Marine litter

Energy pressures such as underwater noise

Higher scores around Ravenna harbour



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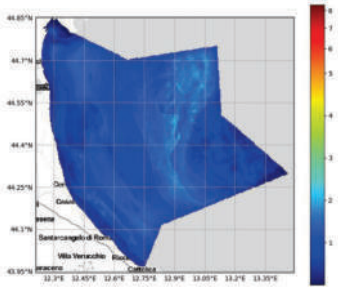
3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

Main results – detail on spatial information

CEA score from biological pressures

Biologycal comonents, with reference to the MSFD parameters (Annex III): : Introduction of microbial pathogens, Introduction of non-indigenous species and translocations, nan, Selective extraction of species, including incidental non-target catches



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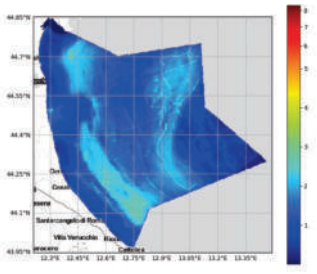
3 – TESTING MSP MODULES

CEA: Cumulative Effects Assessment

Main results – detail on spatial information

CEA score from physical pressures

Physical pressures, with reference to the MSFD parameters (Annex III):
Abrasion (surface, light, heavy), Changes in siltation, Heat effect (due to cabling), Removal of substratum (extraction), Sealing, Significant changes in electromagnetic field, Significant changes in salinity regime, Significant changes in thermal regime, Smothering



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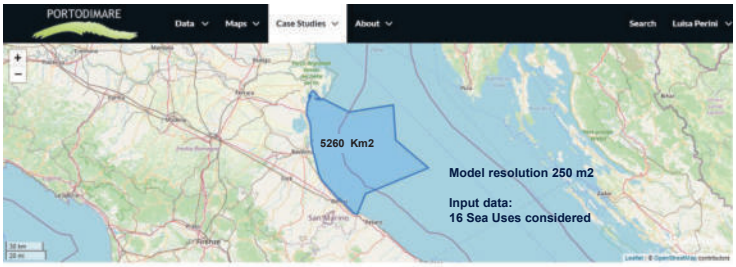
3 – TESTING MSP MODULES

MUC: Maritime Use Synergy and Conflict Analysis

https://www.portodimare.eu/casestudies/121/



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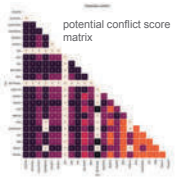
T2.3 Emilia-Romagna Case Study

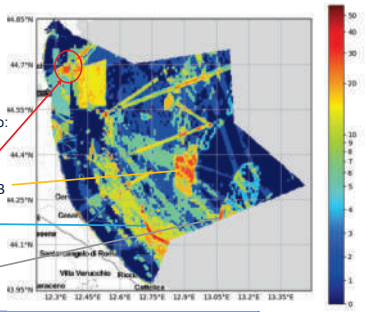
3 – TESTING MSP MODULES

MUC: Maritime Use Synergy and Conflict Analysis

main result is the geospatial distribution of conflict score with reference to the sea-uses offshore Emilia-Romagna updated 2020



potential conflict score matrix



Major conflicts are related to:

- No trawling zones and fishery
- Sand extraction and TBB
- Different fishery techniques (TBB-OTB)
- Traffic and fishery

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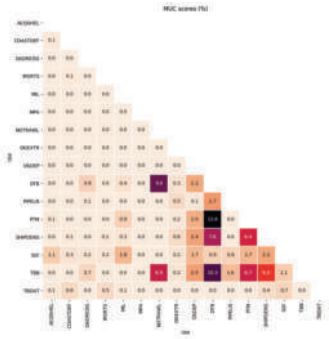
3 – TESTING MSP MODULES

MUC: Maritime Use Synergy and Conflict Analysis

matrix representing the contribution (in percentage) of the single pairwise combinations to the total MUC score



Major conflicts are related to:

- OTB (Bottom Otter Trawl)-No Trawling
- PTM (mid-water pelagic trawling) -OTB
- Traffic and TBB (bottom beam trawl)
- Traffic and SFF (small scale fishery)

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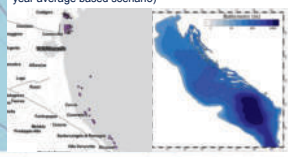
3 – TESTING MSP MODULES

PARTRAC: Particle Tracking

Object of the analysis: simulation of potential areas invested by floating litter (deriving from shellfish nets) and released by shellfish farms

Model resolution 1000 m2
Input data:
Aquaculture areas
hydrodynamic SHYFEM model (*mean* sea-state-including lower part of the other major rivers cond. multi-year average based scenario)



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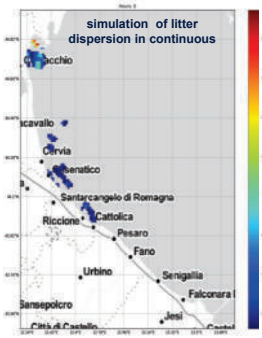
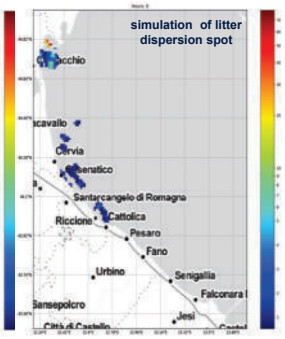
ParTrac Case Study RER

3 – TESTING MSP MODULES

PARTRAC

discharge of shellfish nets simulation is based on of 'General floating particle'





To underline:

major litter fluxes southward could interest the higher touristic beaches (Rimini)

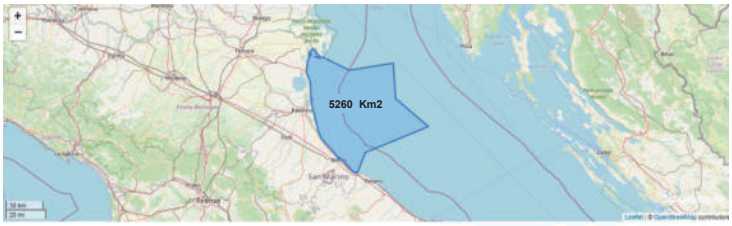
the norther dispersion could impact coastal and marine protected area (MAB Delta PO);

this if no proper environmental measures for mariculture are applied

3 – TESTING MSP MODULES

AZA: Allocated Zones For Aquaculture

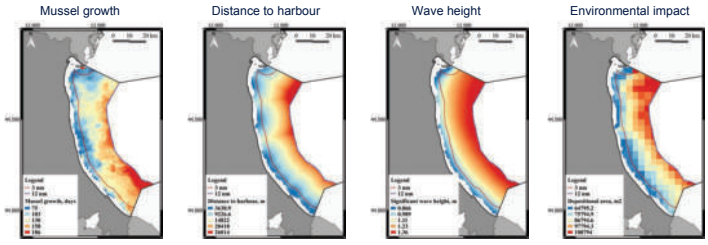
Object of the analysis: research of new areas for aquaculture development



Create Allocated Zones for Aquaculture (AZA)

3 – TESTING MSP MODULES

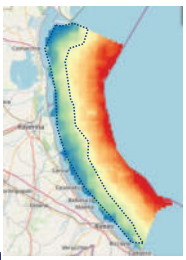
AZA: Allocated Zones For Aquaculture



Criteria selected for the suitability analysis

3 – TESTING MSP MODULES

Create: AZA - Allocated Zones for Acquaculture

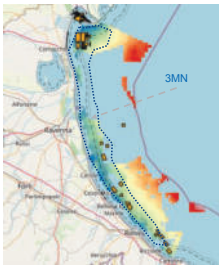


Aquaculture Suitability Index for shellfish farm estimated applying the SMCE Methodology

-

Constrains

(i.e. areas around offshore infrastructures; corridors for transit..)



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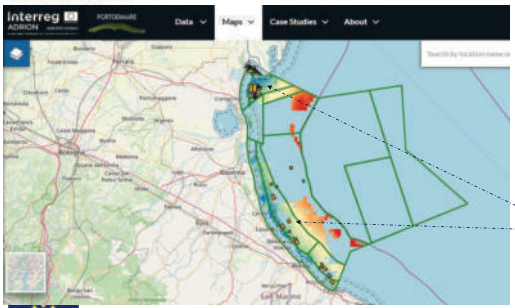
4 – DRAFT OF MSP PLAN

Revision of planning units on the base of output of the tools



Planned scenario (work in progress) clustered in planning units – versus AZA

Planning-unit (A3_03 & 06), vocated to aquaculture as priority activity, fit very well with the sector with highest AZA suitability score

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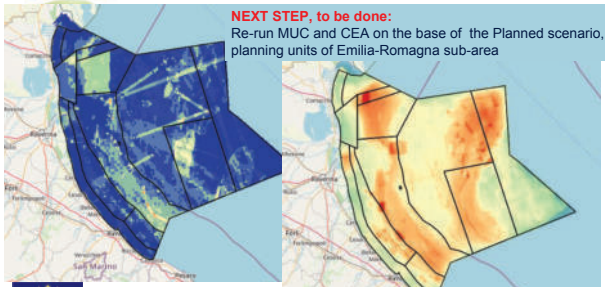
4 – DRAFT OF MSP PLAN

Revision of planning units on the base of output of the tools



NEXT STEP, to be done:
Re-run MUC and CEA on the base of the Planned scenario, to better assess planning units of Emilia-Romagna sub-area

Particular attention to be paid to the areas where highest CEA score have been Identified

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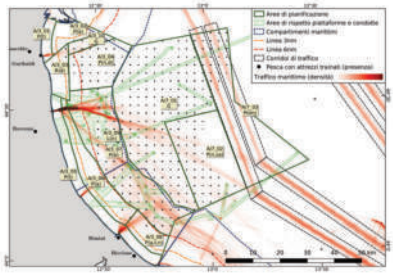
4 – DRAFT OF MSP PLAN



In parallel it's going on with the **assignment of dedicated managing measures** to the different planning units based on:

Different type of measures concerning:

- spatial mesasures (e.i. new clams zones based on AZA)
- temporal mesasures (e.i. estension of fishing stop period)
- environmental behaviour (e.i. use of biodegradable materials)
- upgrading tecnique measures
- knowledge measures
- etc..

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Final Consideration

- GAIR is ready to really support MSP planning in the Adriatic-Ionian sea
- Several up to date information concerning environmental aspects - sea uses are now accessible
- Most important tools for MSP-analysis are now operational and can really give a big support RER-area and Adriatic planning process
- Our Goal is now:
  - ✓ to complete analysis including the re-run of CEA and MUC with reference to the planning subunits
  - ✓ Improve the Planned scenario – complete strategy and measures
  - ✓ **transfer methodology to the national level**

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Thank you

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Spatial conflicts among human activities and conservation priority areas in Western Greek waters

Maria Kikeri
Dimitris Politikos
Stefanos Kavadas
Vassiliki Vassilopoulou

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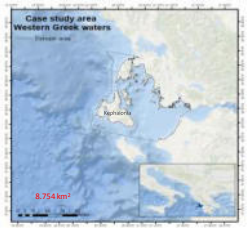
Case study area
Part of the Greek Ionian sea

- Great biological interest as it contains a variety of habitats also listed in Annex I of Habitats Directive such as *Posidonia oceanica* meadows
- Popular touristic destination with a well-developed transport infrastructure; ports, marinas and airports
- Aquaculture constitutes almost the 30% of fish farming production in Greece
- Fisheries and aquaculture are of fundamental importance
- Endangered species: Mediterranean common dolphins and monk seals (*Monachus monachus*)



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Main objectives

- Map the fishing pressure for small and medium scale fisheries (SSF+MSF)
- Identify marine areas suitable to host aquaculture activities and where eventually prioritize its development (AZA)
- Assess and map the Cumulative Effect of human-derived pressures in general but also for specific environmental drivers as *Posidonia oceanica* meadows, *Monachus monachus* and *Delphinus delphis* (CEA)
- Use these modules as tools for Spatial Planning

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Data uploaded to Geoportal of Adriatic-Ionian region

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Modules tested for the Western Greek waters

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1. Modules on Small and Medium–Scale Fisheries Footprints

1. Components

- Bathymetry
- Distance from coast
- Legislation
- Trawl
- Purse seine
- Marine Traffic
- Chl-a
- No-take Zones

2. Grading of Components

3. Pairwise matrix (ranking of components)

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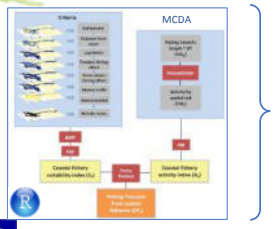
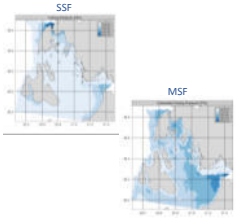
1. Modules on Small and Medium–Scale Fisheries Footprints





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1. Modules on Small and Medium–Scale Fisheries Footprints

Not run within Geoportal

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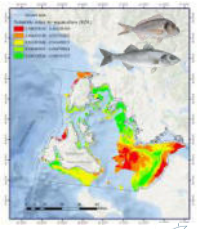
2. Module for mapping Allocated Zones for Aquaculture

Criteria
- Optimal growth models
- Significant wave height
- distance to harbor
- fishing effort

Constraints
- Ports
- cables
- Natura2000
- *Posidonia oceanica* meadows

Run Suitability function

$$SI = \sum w_i x_i * \prod c_j$$



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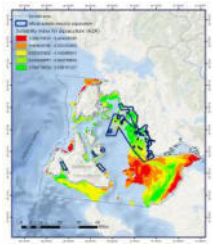
2. Module for mapping Allocated Zones for Aquaculture

AZA's suitability index vs Greece's Framework for Common Spatial Planning for Aquaculture

- the areas proposed by the official spatial plan are in agreement with the results of the analysis
- the analysis also proposes new areas suitable for the allocation of aquaculture



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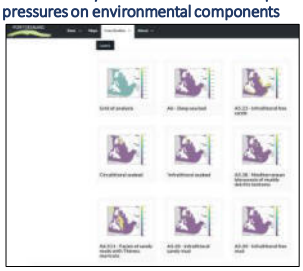
3. Module for the analysis of cumulative impacts of anthropogenic pressures on environmental components

- Human activities
- Ecosystem components
- Sensitivities
- Pressure weights



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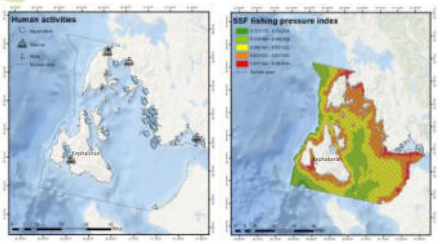
Human activities



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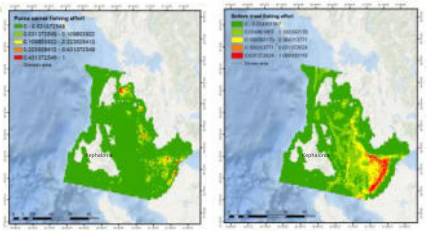
Human activities



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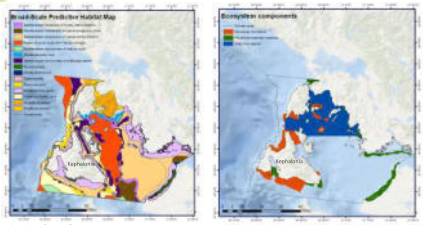
Ecosystem components



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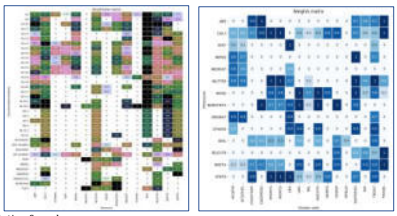
Sensitivities – Pressures weights



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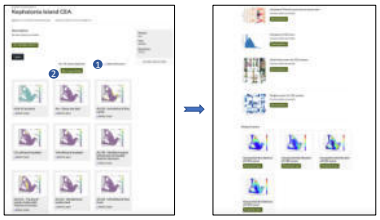
Run Cumulative Effects Assessment



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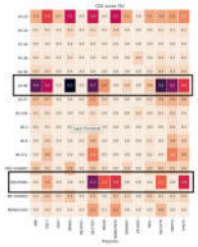
Results of Cumulative Effects Assessment

The combination of ecosystem components and pressures presenting the highest percentage score are:

1.Mediterranean biocenosis of coastal detritic bottoms: high extension of the habitat ca. 28% of the total case study area, mainly impacted by overlapped intense and localized pressures (i.e. abrasion and selective extraction)

2. Common dolphins: highest percentage of CEA score due to marine litter, underwater noise, and introduction of non synthetic and synthetic compounds



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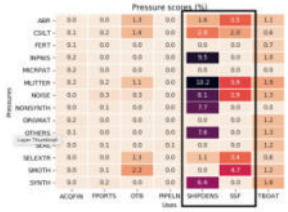
Results of Cumulative Effects Assessment

The highest pressure score is linked to pressures derived from maritime traffic and from small scale fishery, such as marine litter, introduction of invasive species, noise and introduction of non sysnthetic and synthetic compounds.



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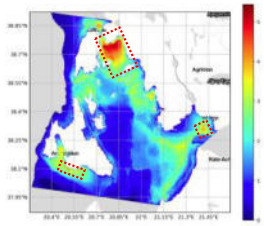
Results of Cumulative Effects Assessment

Most impacted areas with the red frame



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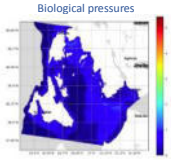
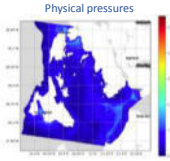
Results of Cumulative Effects Assessment

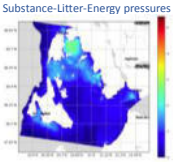
Biological pressures



Physical pressures



Substance-Litter-Energy pressures



affect most CEA

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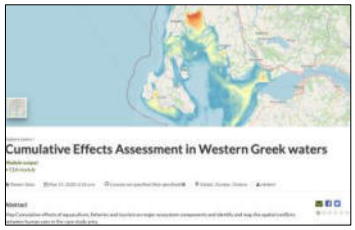
Results of Cumulative Effects Assessment



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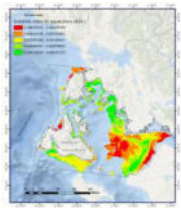
Cumulative Effects Assessment + AZA

+



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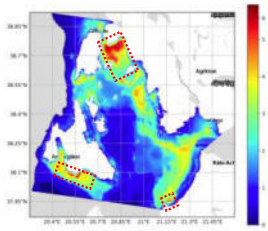
Cumulative Effects Assessment + AZA

+

This project is co-financed by the European Union

Results of CEA + AZA

Most impacted areas with the red frame



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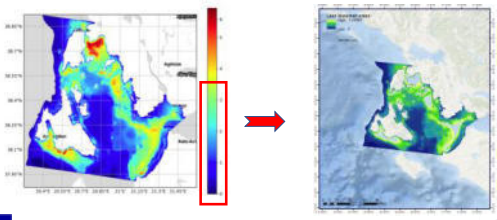
Results of CEA + AZA



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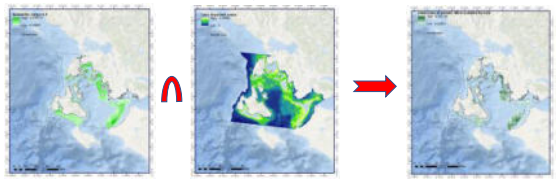
Areas less impacted - most suitable for AZA

Most suitable areas

Less impacted areas



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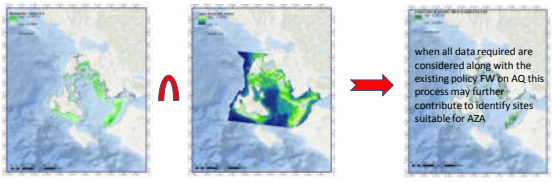
Areas less impacted - most suitable for AZA

Most suitable areas

Less impacted areas



when all data required are considered along with the existing policy FW on AQ this process may further contribute to identify sites suitable for AZA

This project is co-financed by the European Union

Geoportal of Adriatic-Ionian region

Strengths

- Data gathering
- modules for analysis

Gaps

- Technical problems-many bugs
- Not all modules run within GAIR

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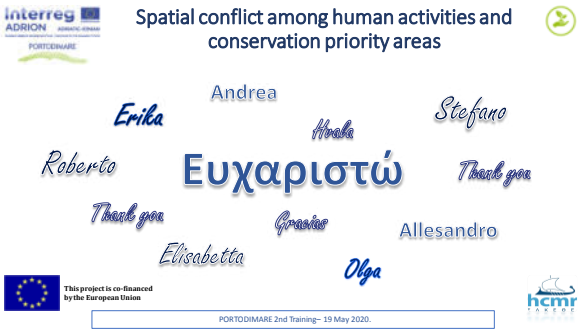

Spatial conflict among human activities and conservation priority areas
Andrea
Erika
Stefano
Hvala
Roberto
Ευχαριστώ
Thank you
Thank you
Gracias
Allesandro
Elisabetta
Olga
This project is co-financed by the European Union
PORTODIMARE 2nd Training– 19 May 2020.

T 2.5 - ABRUZZO COASTAL EVOLUTION MAPPING

Abruzzo Region - Service Maritime Works and Marine Water

Work group: Luca Iagnemma, Giovanna Marrama, Roberto Ricci, Franco Macedonio

External technical support: Ing. Daniela San Lorenzo

This project is co-financed by the European Union

Layout of the presentation

- Aims and motivations
- Site description: the coastal stretch of Abruzzo Region
- Methodological Approach
- Preliminary results
- Layers upload to GAIR
- Map Creation
- Working in progress and ongoing attivities

AIMS AND MOTIVATIONS

AIMS AND MOTIVATIONS: REGIONAL COASTAL EVOLUTION MAPPING

Coastal evolution mapping of the coastal stretch of the Abruzzo Region (Central Italy) to evaluate the effects of antropic pressures on coastal erosion within the temporal span 1956-2018.
The needed time resolution is of the order of 20 years:

- to identify erosional hot spots along the regional coasts;
- to check the effectiveness of the coastal defences;
- to define the priority order of future interventions.

Study site description: the coastal stretch of Abruzzo Region

The study site: Abruzzo Region coasts

The 130 km long regional coastline, belonging to 19 coastal municipalities, is low and sandy for about 90 km.

The northern part of the regional coasts is mainly low and sandy. The high and rocky coasts is mainly located in the South (Municipality of Ortona, San Vito, Rocca San Giovanni and Vasto)

The 90 km long low sandy coast involves the coastal territory of the following 17 municipalities (from North to the South):

Martinsicuro, Alba Adriatica, Tortoreto, Giulianova, Roseto degli Abruzzi, Pineto, Silvi;

Città S. Angelo, Montesilvano, Pescara;

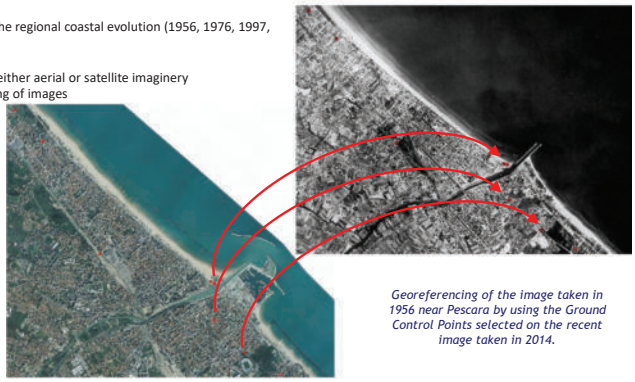
Francavilla al Mare, Ortona, Fossacesia, Torino di Sangro, Casalbordino, Vasto ,San Salvo;

Methodological Approach

REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH

The mapping of the regional coastal evolution (1956, 1976, 1997, 2018) started by:

- data finding: either aerial or satellite imaginery
- Georeferencing of images



Georeferencing of the image taken in 1956 near Pescara by using the Ground Control Points selected on the recent image taken in 2014.

REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH

- The georeferenced images were used to extract the instantaneous shoreline.

REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH

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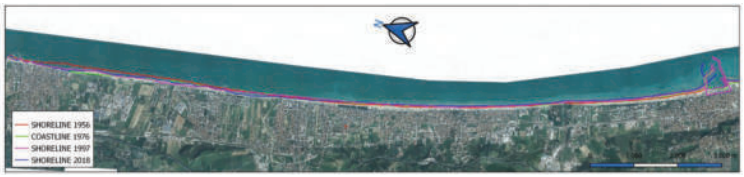
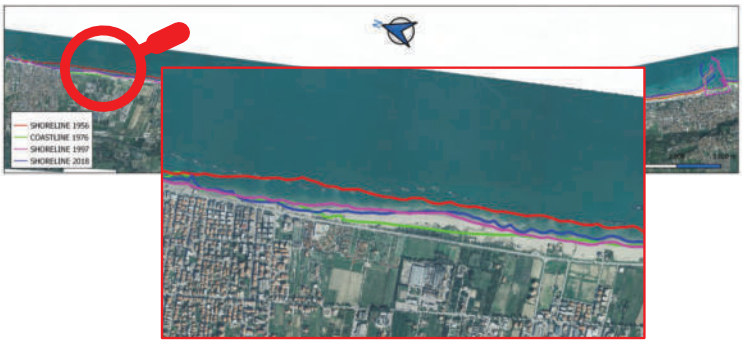
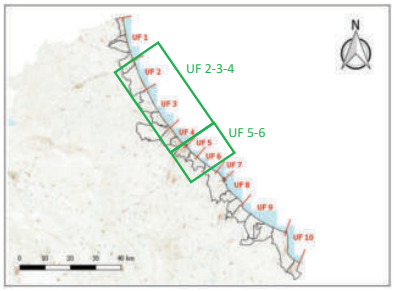


REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH



REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH

- The digitized shoreline were used to evaluate its evolution along the whole regional littoral. A diachronic analysis was then performed for each physiographic unit (UF).



UF 1: Tronto River Mouth – Giulianova Harbour;
UF 2: Giulianova Harbour –Vomano River Mouth;
UF 3: Vomano River Mouth – Saline River Mouth;
UF 4: Saline River Mouth – Pescara Harbour;
UF 5: Pescara Harbour – Francavilla Marina;
UF 6: Francavilla Marina – Torre Mucchia headland;
UF 7: Torre Mucchia headland – Ortona Harbour;
UF 8: Ortona Harbour – Punta Cavalluccio headland;
UF 9: Punta Cavalluccio headland – Punta Penna headland;
UF 10: Punta Penna headland – Trigno River Mouth .

Some of the physiographic units are bounded by manmade structures, then they were observed to vary during the years.
Then, the some of the current (i.e. today) physiographic units have been merged.

REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH

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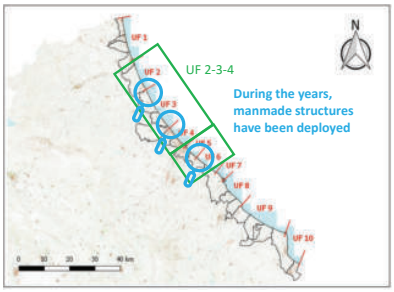

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Then, the some of the current (i.e. today) physiographic units have been merged.

REGIONAL COASTAL EVOLUTION MAPPING: METHODOLOGICAL APPROACH

- The diachronic analysis has been performed with a spatial resolution of 10 m, by evaluating the shoreline displacement with respect to two different epoches:

$$\Delta Y_{1,2} = Y_2 - Y_1$$

Where the pedices refer to the epoch. If DY is higher than zero, the shoreline has experienced local accretion. If DY is lower than zero, it has experienced local erosion.

PRELIMINARY RESULTS

REGIONAL COASTAL EVOLUTION MAPPING: PRELIMINARY RESULTS

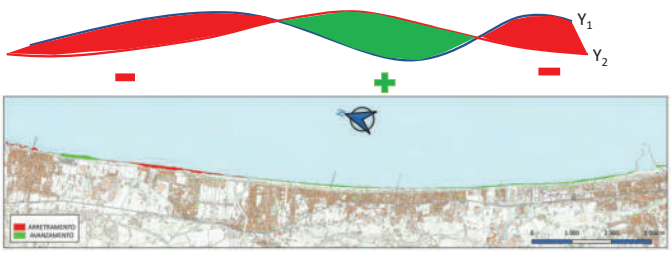
The results are given by means of shp files to be uploaded to the geoportal:

- A series of vector (points) shapefiles have been issued. They contain the local shoreline displacements ΔY for the temporal windows 1956-1976, 1976-1997, 1997-2018.

REGIONAL COASTAL EVOLUTION MAPPING: PRELIMINARY RESULTS

The results are given by means of shp files to be uploaded to the geoportal:

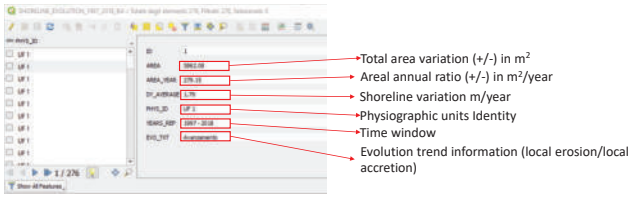
- To make more useful the results (in particular for the geoportal users), they have been extracted in terms of area variations and uploaded to the geoportal.



REGIONAL COASTAL EVOLUTION MAPPING: PRELIMINARY RESULTS

The results are given by means of shp files to be uploaded to the geoportal

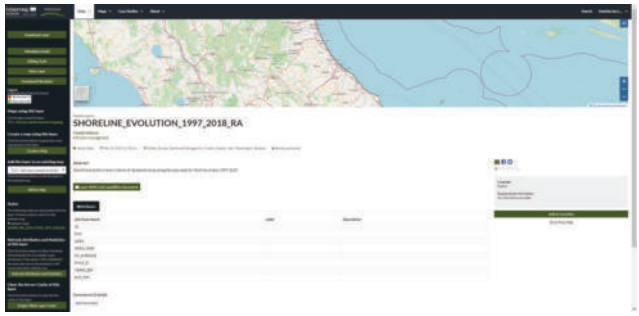
- Each shapefile containing area variations show also a series of information by means of "attributes".



LAYER UPLOADS ON GAIR

REGIONAL COASTAL EVOLUTION MAPPING: LAYERS UPLOAD

In the last few days, the layers (created ad hoc for the project) were uploaded to the GAIR



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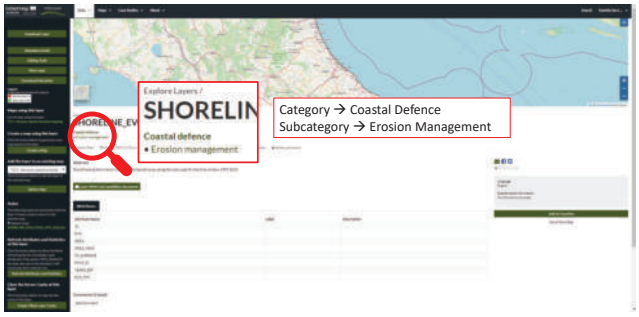

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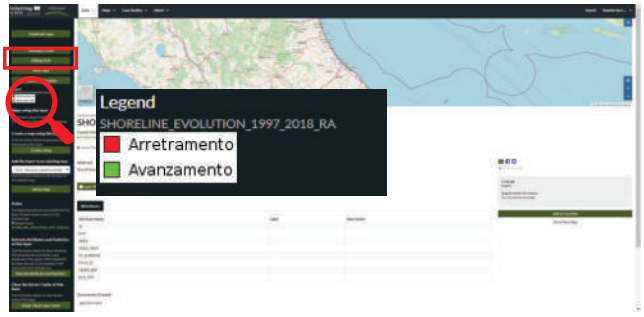
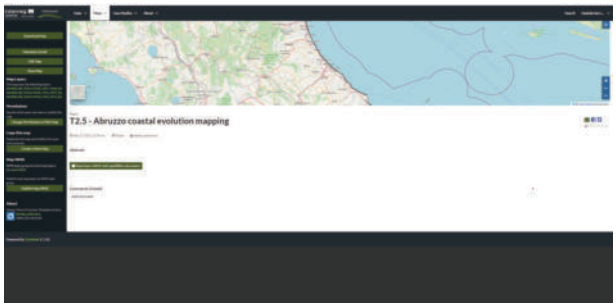
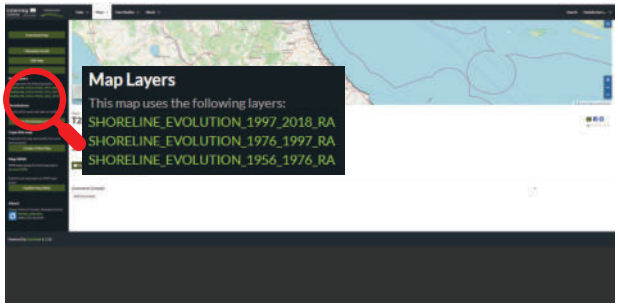


MAP CREATION

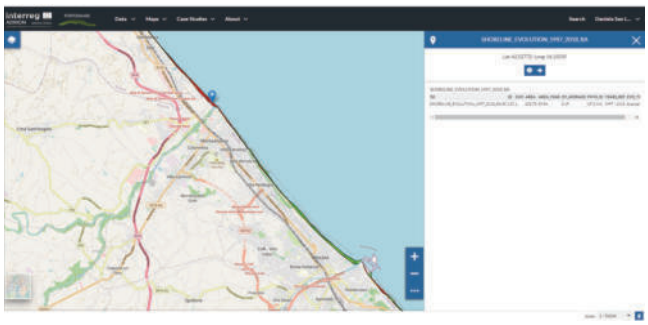
REGIONAL COASTAL EVOLUTION MAPPING: MAP CREATION



REGIONAL COASTAL EVOLUTION MAPPING: MAP CREATION



REGIONAL COASTAL EVOLUTION MAPPING: MAP CREATION



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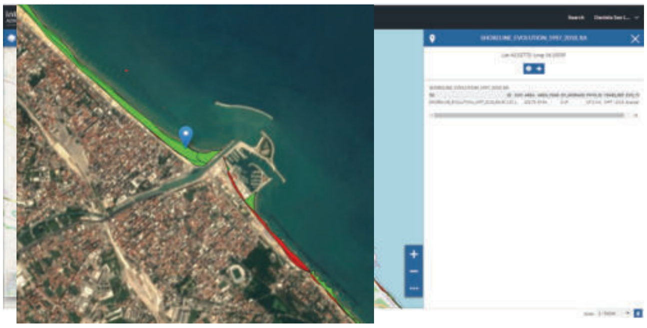

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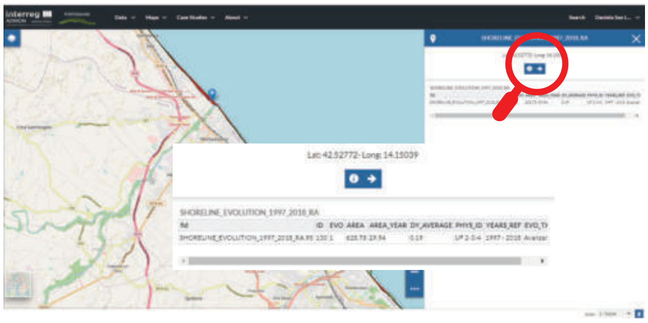

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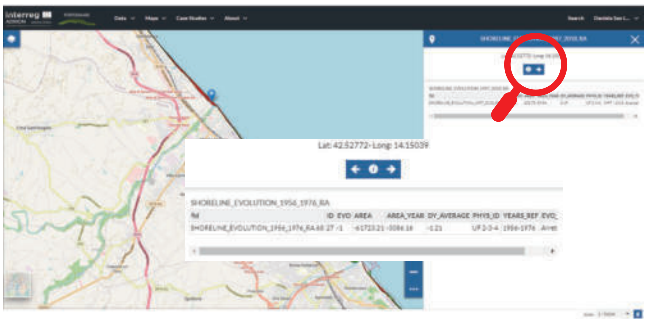

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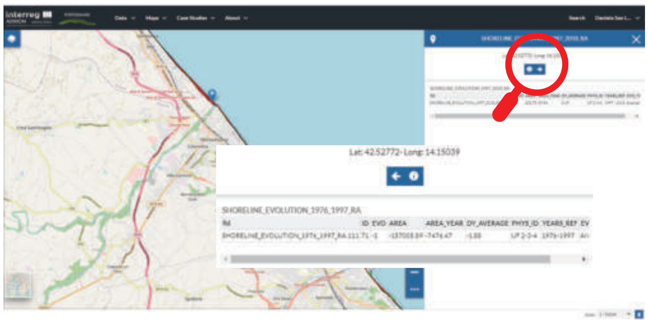


REGIONAL COASTAL EVOLUTION MAPPING: FIRST IMPRESSIONS

How do you evaluate the functionality of the GAIR in general; what were the strengths and gaps encountered during testing of the module(s)

In general, the geoportal in its recent version is easy to use and the last updates to the documentation were useful.

The geoportal seems to work correctly, even if sometimes it is slow (probably due to the high number of synchronous connections)

WORKING IN PROGRESS AND ONGOING ACTIVITIES

REGIONAL COASTAL EVOLUTION MAPPING: WORKING IN PROGRESS

- Mapping of the man-made structures (coastal defence, harbour structures, river works, etc…) for the different time windows (1956-1976, 1976-1997, 1997-2018) to be uploaded to the geoportal.

- The data can be used along with the other information in the GAIR to test either CEA or MUC module

This project is co-financed by the European Union

Brief presentation of the testing site

- Bosnia and Herzegovina is a compound state, which in line with the General Framework Agreement for Peace in BiH, consists of two entities namely **Federation of Bosnia and Herzegovina** (51% of territory) and the **Republika Srpska** (49% of territory) and **Brčko District.**

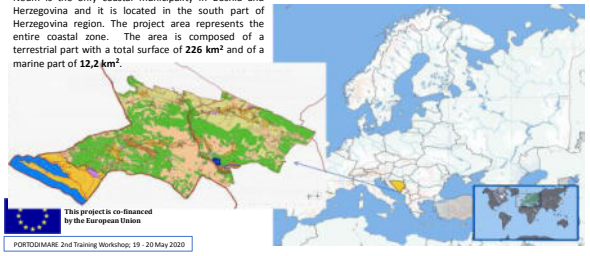
- *Entities*

The Federation of Bosnia and Herzegovina and the Republika Srpska are entities having their own constitutions, which have to be in conformity with the Constitution of Bosnia and Herzegovina.

- *Federation of Bosnia and Herzegovina*
  - ❖Federation of Bosnia and Herzegovina, as the entity, consists of ten cantons (which, in administrative terms are further split into communes)
  - ❖The municipality of Neum is located in Herzegovina-Neretva Canton

Brief presentation of the testing site

Neum is the only coastal municipality in Bosnia and Herzegovina and it is located in the south part of Herzegovina region. The project area represents the entire coastal zone. The area is composed of a terrestrial part with a total surface of **226 km²** and of a marine part of **12,2 km²**.



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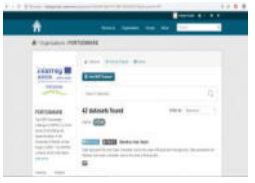
Information/data that were collected/uploaded to GAIR



Data uploaded on Geoportal

- Coastline of BiH
- Mapping of the current location of aquaculture farms (mussels, other mollusks, finfish, seaweed)
- Flood risk management
- Land based activities- polluters
- ZTB current location and potential one and characteristics (definition of which activities are banned)
- River basin-missing

Tested modules

- CEA- Cumulative Effects Assessment
- MUC-Maritime Use Conflict
- In the next days the moduls for testin will be able to test our region.

Functionality of the GAIR in general

By the end of the project...

- Test Moduls (CEA and MUC)
- Run the Case study
- Create a report for Spatial conflicts among existent uses and legal regimes on sea-coastal strip along Bosnia and Herzegovina coast
- Prezentation of report and obtained results to stakeholders in BIH.


THANK YOU

Testing GAIR functionality, CEA and MUC tools in the Slovenian case study

Slavko Mezek, Boštjan Krapez, Martina Bocci

This project is co-financed by the European Union

Contents of the presentation

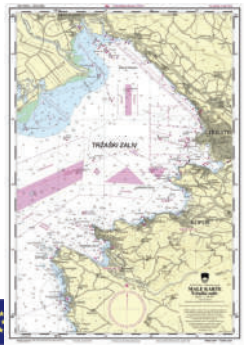
1. The Slovenian testing site and its planning issues
2. Spatial layers availability for Slovenian area
3. Approach to module testing
4. Results from CEA and MUC
5. GAIR functionality test comments and proposed to-do list
6. Next steps by the end of the project

This project is co-financed by the European Union

PORTODIMARE 2nd Training Workshop; 19 - 20 May 2020

According to the "Final Award" of Permanent Court of Arbitration on disputed border areas between RS and RC :

Presentation of the testing site (location, scale)



Location, scale:

North Adriatic,
Bordering with Croatia and Italy,
Covers a third of the Golf of Triest

Slovenia's marine waters are defined as*:
Internal waters: 46,3km2
Territorial sea: 166,9 km2
Junction area: 100 km2

*According to the "Final Award" of Permanent Court of Arbitration on disputed border areas between Croatia and Slovenia (29 June 2017).

PORTODIMARE 2nd Training Workshop; 19 - 20 May 2020

Planning issues, problems to solve

- **Slovenia has started the MSP preparation process**:
- (i) Methodology for MSP implementation,
- (ii) preparation of the cartographic basis for MSP;
- (iii) Preparation of MSP: draft has been prepared
- Framework of the Spatial Planning Act (2017)
- **Planning issues**:
- Maritime transport, Port of Koper (dredging)
- Coastal tourism, cruise tourism,
- Fishery (regimes), marine acquaculture (expansion)
- Protection of coastal and marine habitats (expansio

- Limited territorial sea and the shortness of the coast → competition both at sea, on the coast,
- integration is gaining importance. Competition between the interests of nature protection and economic use

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PORTODIMARE 2nd Training Workshop; 19 - 20 May 2020

Spatial layers availability for Slovenian area

Among 63 datasets in MSCP for Slovenian Adriatic Sea domain area 14 proved to be suitable for GAIR portal and after thorough examination 12 were imported on portal.

PORTODIMARE MSP Knowledge Catalogue → PORTODIMARE

Inventory of spatial layers and their use for Slovenian test case

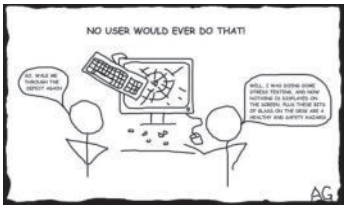
	Layers for Slovenian adriatic sea domain	Collected and uploaded in GAIR by partner	Larger datasets covering Slovenian domain area	Used by Slovenian CEA	Used by Slovenian MUC
1	Ecologically important areas in Slovenia				
2	Bathing water impact areas in Slovenia				
3	Generalized detailed dedicated use of coastal space in Slovenia				
4	Legal regimes of cultural heritage (eVrd)				
5	The register of valuable natural features in Slovenia				
6	Protected areas in Slovenia				
7	Emissions into waters from industrial plants				
8	No trawling areas in Slovenian Adriatic				
9	Slovenian marine habitat classification				
10	Actual anchorage of large commercial vessels waiting to enter Port of Koper				
11	Main traffic corridors of Slovenian sea				
12	Bathing waters area				
13	Slovenian reference area				
14	Use - Aquaculture - Finfish				
15	Use - Industrial ports				
16	Use - Tourism - boating/yachting				
17	Use - Passage of ships/boats				
18	Use - Small Scale Fishery				
19	Use - OTB - TBB - PTM				
20	Environmental - Turtles				
21	Environmental - Mammals				
22	Environmental - Essential Fish Habitats (Nursery and Spawning grounds)				

Available information was enough to pass module tests but it proved that more accurate – small scale data appropriate to the test scenario should be used.

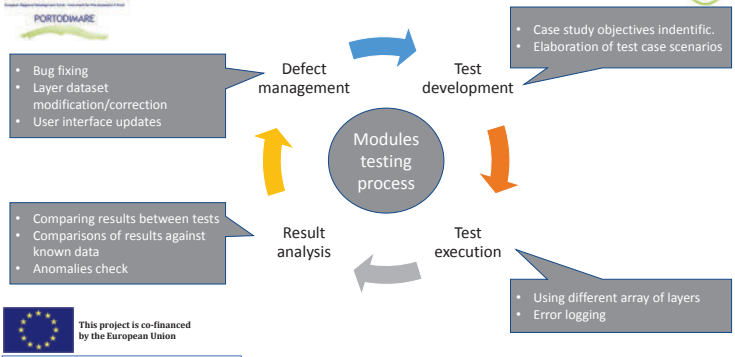
Module testing - Slovenia

When? After minium required spatial datasets where available for each module
How? With the process of numerous tests and good communication between partners (PP3 and PP2)

VS



Module testing - Slovenia



Testing MUC and CEA tools in the Slovenian case study

Identification of objectives

With reference to the Slovenian national MSP process , the following objectives were defined for the testing site:

1. Use CEA to analyse:

✓ the overall impact of coastal and maritime activities
✓ the impact of the maritime transport sector
✓ other specific analysis to be defined from the results of the overall impact analysis.

2. Use MUC to analyse:

✓ the conflicts between maritime traffic and small scale fisheries
❖ the conflicts between beach tourism (bathing waters) and tour boat sector
❖ the conflicts between natural protection and tour boat / pleasure boating sectors.

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Environmental receptors and sea uses in the case study area

Environmental receptors	Coastal and sea uses
env | A5.36 - Circalittoral fine mud	use | Passage of ships/boats
env | A5.14 - Circalittoral coarse sediment	use | Industrial ports
env | A4 - Circalittoral rock and other hard substrata	use | Tourism - boating/yachting
env | A3 - Infralittoral rock and other hard substrata	use | Small Scale Fishery
env | A5.531 - Cymodocea beds	use | OTB + TBB + PTM (trawling)
env | A4.26 - Mediterranean coralligenous communities	use | Aquaculture - Finfish
env | Essential Fish Habitats (Nursery and Spawning grounds)	use | Land based activities (input of various classes of substances)
env | Mammals	
env | Turtles	

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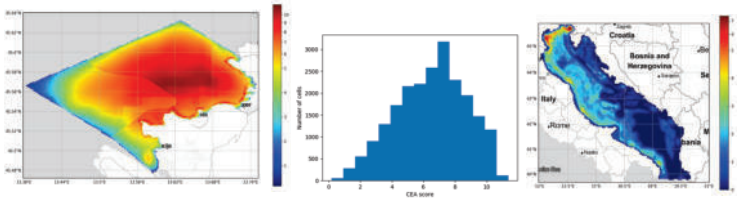
Testing CEA: overall impact of sea uses

Analysis of CEA scores: values and distribution

✓All uses selected
✓All environmental receptors selected



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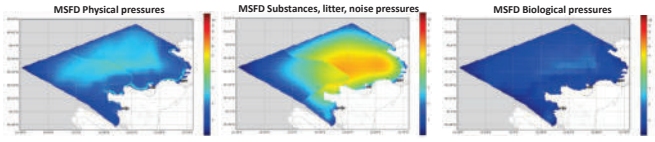
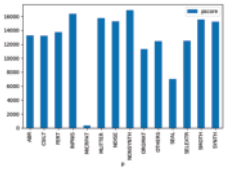
Testing CEA: overall impact of sea uses

Analysis of pressures: values and distribution





PRESSURES WITH HIGHEST SCORE:
1) Input of non synthetic substance (SUB)
2) Input of NIS (BIO)
3) Input of marine litter (SUB)
4) Noise (SUB)
5) Smothering (PHY)
6) Input of synthetic substances (SUB)

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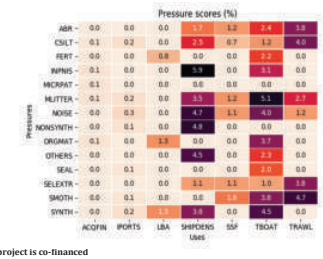
Testing CEA: overall impact of sea uses

Analysis of uses: uses determining environmental pressures



USES WITH THE HIGHEST CONTRIBUTION TO PRESSURE SCORE:
1) Tour boats (36.9%)
2) Ship density (32.5%)
3) Trawling (20.2%)
4) Small scale fisheries (6.9%)

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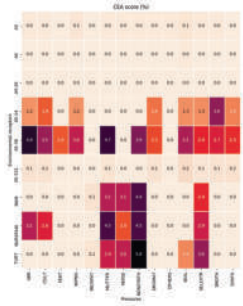
Testing CEA: overall impact of sea uses

Analysis of environmental receptors: most impacted habitats / species

ENVIRONMENTAL RECEPTORS WITH THE HIGHEST CEA SCORE:
1) A5.36 "Circalittoral fine mud" (34.8%)
2) Nursery / Spawning areas (19.7%)
3) Turtles (16.7%)
4) Marine mammals (13.1%)
5) A5.14 "Circalittoral coarse sediment" (12.3%)



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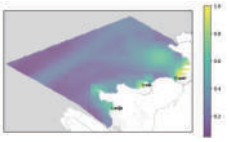
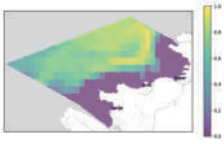
Testing CEA: single sector analysis

IMPACT OF SHIP/BOAT TRAFFIC



IMPACT OF TOURISM - BOATING/YACHTING

IMPACT OF TRAWLING



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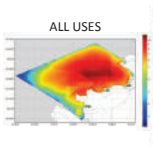
Testing CEA: single sector analysis

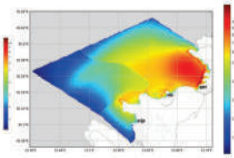
IMPACT OF SHIP/BOAT TRAFFIC

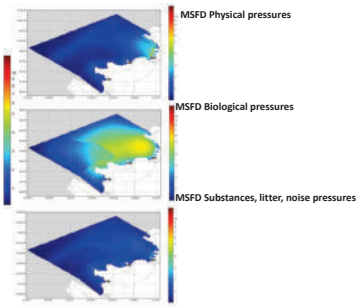
✓Selected uses: Passage of ships/boats
✓All environmental receptors selected

ALL USES



PASSAGE OF SHIPS/BOATS





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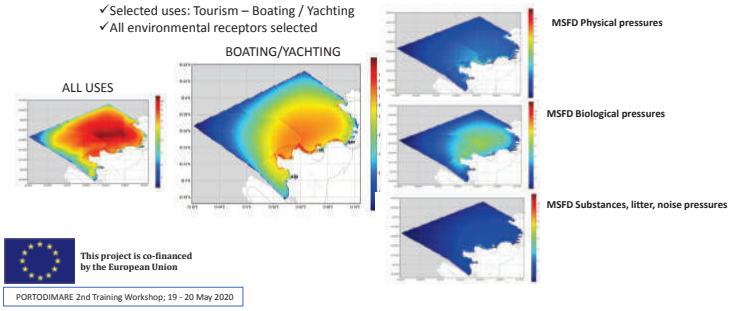
Testing CEA: single sector analysis

IMPACT OF TOURISM - BOATING/YACHTING

✓Selected uses: Tourism – Boating / Yachting
✓All environmental receptors selected

ALL USES

BOATING/YACHTING



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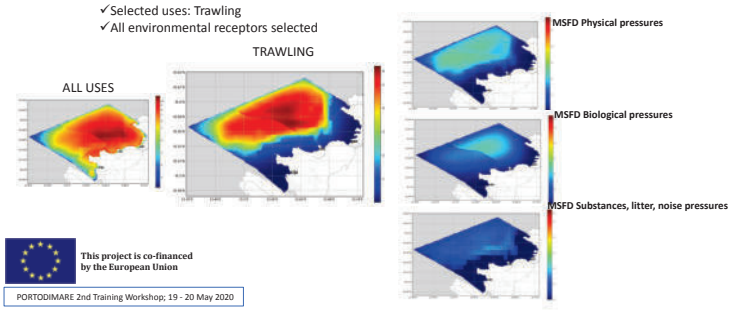
Testing CEA: single sector analysis

IMPACT OF TRAWLING

✓Selected uses: Trawling
✓All environmental receptors selected

ALL USES

TRAWLING



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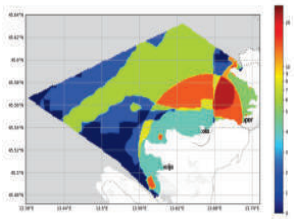
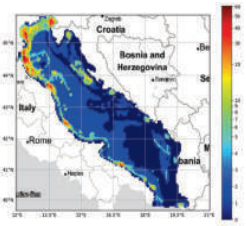
Testing MUC: overall conflict analysis

Analysis of MUC scores: values and distribution



✓All uses selected



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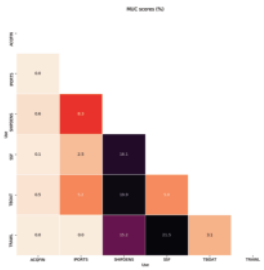
Testing MUC: overall conflict analysis

Analysis of uses: MUC score per use combination



USES INVOLVED IN CONFLICTS
(MUC scores %):
1) Vessel traffic (ships + boats) 62.1%
2) Small scale fishery 47.2%
3) Boating and Yachting 33.7%
4) Industrial ports 16%
5) Aquaculture 1.2%

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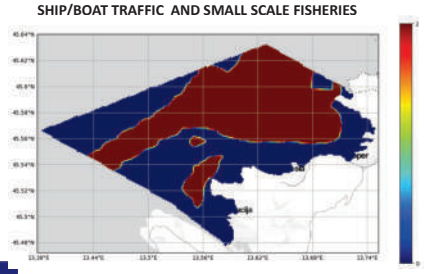
Testing MUC: specific conflicts

SHIP/BOAT TRAFFIC AND SMALL SCALE FISHERIES



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Conclusions so far and next steps of tool impementation

CEA and MUC were successfully tested in the Slovenian case study area
– Most impacting pressures and were identified: they are in line with the knowledge framework for the area, derived from research and monitoring data and documented in the scientific literature.
– The analysis confirmed the issues related to the maritime traffic in the area, in terms of environmental impact and conflicts generated. The impact exerted by leisure boating was also highlighted.

NEXT STEPS TO COMPLETE THE CASE STUDY
– Conflict analysis is to be complemented with assessing the conflicts involving marine protected areas.

NEXT STEPS TO SUPPORT THE NATIONAL MSP PROCESS
– Alternative scenarios to be evaluated with the tools.

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GAIR functionalites test comments 1

Data section – Layers

Strengths	Gaps
Good search engine	Layers with duplicate content
Filters	Lack of option to default layer filter upon log-in (not to be presented with all datasets from all area)
Easy upload of data and style	

Data section – GeodataBuilder

Strengths	Gaps
Great tool for adding value to existing layers	Lack of user documentation

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GAIR functionalites test comments 2

Maps

Strengths	Gaps
Simple option to add layer to map	Amount of time to load new layer in a map and map scrolling
Filters	Styling of layers is difficult (suitable only for advanced users)

Case studies

Strengths	Gaps
Simplified use of advanced spatial analysis tools	Lack of detailed user documentation on module cases
	To this point a large amount of offline data elaboration is needed to correctly prepare the datasets for new modules to run properly
	More describtion to module outputs

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GAIR functionalites to-do

The list of proposed tasks to be accomplished by the end of the project

- All available tools should be clear of bugs
- Optimization of map creation and map loading
- Ability to add or remove layers from modules (module management)
- Module results should be updated with descriptions, comparable legends (symbology, units,…)
- Extend user documentation (with examples, video tutorials/lectures) on topics „create and use geodatabuilder“ or „module run – from data preparation to results interpretation“

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Next steps by the end of the project

- Presentation and discussion with:
  - Competent authority, steering group;
  - Experts involved in MSP preparation,
  - Potential users of the Geoportal and tools;

- Potentials of analysis based on tools:
  - Argumentation for planning decisions;
  - Assessment of alternative options;

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T2.7

Testing #6: Oil spill coastal grounding response (CP Apulia) Module: Coastal vulnerability to oil spills

Lorenzo Natrella, CP Apulia
Raffaella Matarrese, CNR
Marco Meggiolaro, EURIS

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Goal of the Testing #6: Oil spill coastal grounding response (CP Apulia)

- **(what)** Stress-test to validate the potential of the GEOPORTAL module system deriving from Adriatic Atlas and associated to support the Civil Protection and Operational Centre to address wise response in case of oil spill grounding & coastal pollution.
- **(how)** One oil-spill simulation and consequent GEOPORTAL –supported tactics to conduct oil-spill grounding & evaluate oil-spill contingency plans at coasts is conducted within a specific training-site along Apulian seashore, with the participation of chief commanders, partners' observers & Civil Protections' volunteers

INDEX

01. Background

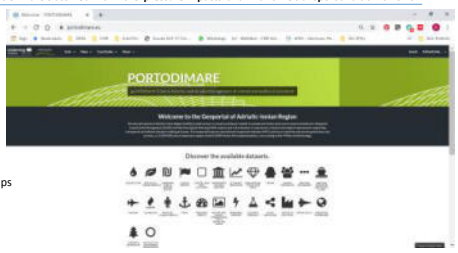
The GAIR application concerning the Coastal vulnerability to oil spills is follow-up the HAZADR-ATLAS system

The ambition of HAZADR project (IPA Adriatic 2007-2013) is to enable - through the ATLAS system - the highest number of emergency corps in different Adriatic countries and regions to use the same early warning system anytime and be informed over the potential oil-spill risk evolution in Adriatic.

02. The module «oil spill» of the GAIR

(from HAZADR to Portodimare)

Oil spill products in GAIR platform are classified within the 'pressure impacts' and 'Maritime transport and traffic flows' categories



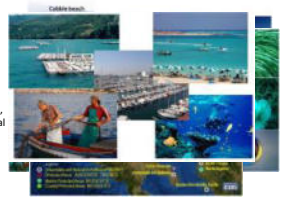
- Vulnerability maps
- Risk maps

Description of A.T1.10 products

The GAIR includes two different main typology of layers that will have been implemented in Portodimare:

ATLAS → Vulnerability of Coastal areas defined considering:

- Shoreline features
- Plants and Animals
- Protected areas
- Economic, Culture & Heritage, Social, Amenity & Recreational



Description of A.T1.10 products

The GAIR includes two different main typology of layers that will have been implemented in Portodimare:

ATLAS → Vulnerability

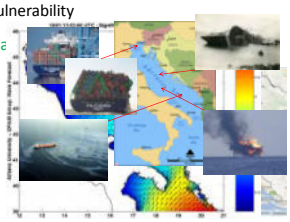
Ha

Maritime traffic

Oil and gas platform

Adriatic sea characteristics

Analysis of historical accidents in the Adriatic sea



Vulnerability maps

Vulnerability maps provide indications on the priorities of the most vulnerable areas to preserve or to clean up in case of maritime accidents.

Based on the New Zealand approach described by Stevens et al. in 2005, vulnerability has been computed considering environmental and anthropic features of the coast.

VULNERABILITY	ENVIRONMENT	1	Shoreline Character
		2	Plants & Animals
		3	Protected Sites
	HUMAN	4	Economic
		5	Cultural
		6	Social, Amenity & Recreation

Vulnerability maps

Vulnerability maps provide indications on the priorities of the most vulnerable areas to preserve or to clean up in case of maritime accidents.

Each information layer, with its own rank, is combined with all the other information layers weighted as shown in the table, according to New Zealand Oil Spill Risk Assessment. Total vulnerability will be the sum of all of them.

VULNERABILITY	ENVIRONMENT	1.5	Shoreline Character
		1.75	Plants & Animals
		1.5	Protected Sites
	HUMAN	2	Commercial fisheries
		2	Human use

Total Coastal Vulnerability to Oil Spill

Environmental Vulnerability to Oil Spill

Human Vulnerability to Oil Spill

The accuracy of the maps depends on the accuracy and the availability of the single information layer.

Comadex Index

Comadex (COastal MArche region Daungerousness EXposure) index estimates vessel's dangerousness.

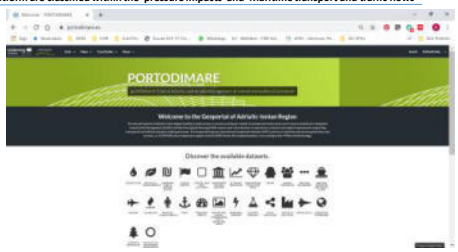
It is based on **AIS** (Automatic Identification System) able to give in real time several information of a vessel.

It provides the risk of accident associated to each vessel

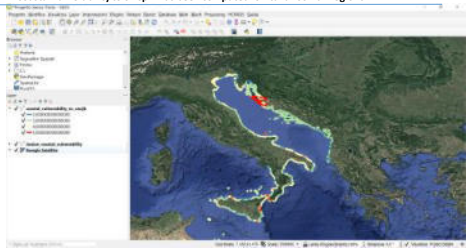
Douglas scale for sea state

03. The results of the module «oil spill» of the GAIR
(and usability)

Oil spill products in GAIR platform are classified within the 'pressure impacts' and 'Maritime transport and traffic flows' categories



In PORTODIMARE coastal vulnerability to oil spill has been computed for Italian Jonian regions.



In PORTODIMARE coastal vulnerability to oil spill has been computed for Italian Jonian regions.

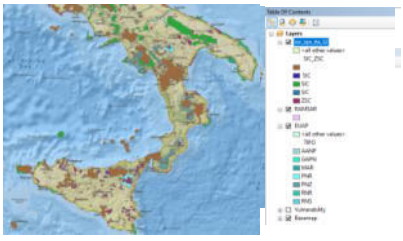
All the input data were provided by **ISPRA**.
In particular:

Morfology

Ports

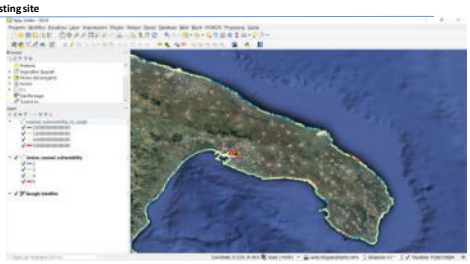
Urbanization

Protected areas



Apulia region testing site

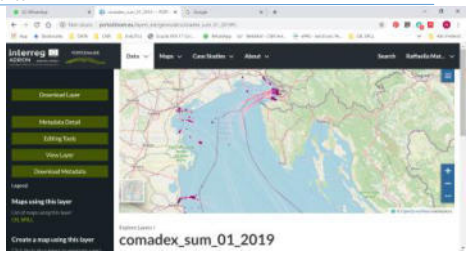
The two maps are changed because of the different availability of input data.



Risk map based on COMADEX

The **twelve maps in the GAIR** have been built summing the values of Comadex indexes for each month of 2019.

It is thus possible to evaluate the **most dangerous routes** in the Adriatic sea, according to Comedex index.



04. Usability of the module «oil spill» of the GAIR

Usability of the GAIR maps of vulnerability to oil-spill

	Territorial and coastal planning (ICZM)	Risk prevention	Decision Support System	Early Warning System
Basic «standard» version (GAIR Portodimare)	x	x	x	
Upgraded version	x	x	x	x

The system upgrade depends on the availability of some add-in

- Oil spill diffusion forecast model in operation (with low resolution)
- Database and location of oil-spill response facility (to activate mutual support)
- Real time «automatic» alarm system
- Networks of Civil Protection and maritime authorities involved and enabled to use the APP

Example of a possible upgraded version of the GAIR (from static DSS to a real time EWS)

But the GAIR, as it is, can have anyway a strong DSS potential ….recent application of the GAIR maps of vulnerability to oil-spill

Event: grounding of the Turkish ship Efe Murat which, with 15 crew members, ran aground on the morning of 23 February 2019 on the breakwater barrier of the Bari seafront in front of the Pane e Pomodoro beach while traveling under the sea to shelter due to the strong wind at 35 knots.

GAIR application: the civil protection used the vulnerability maps to assess the morphologic characteristics of the sea-shore, the presence of poseidonia, the closest infrastructures and the presence of response equipment.

05. #6 Testing of the GAIR

Testing of the GAIR by accident simulation with oil-spill

In order to test the usability of the GAIR vulnerability maps, a simulation of a oil-spill accident will be organized in the Adriatic Sea along the coast of central Puglia.

A test of the GAIR will be carried out in order to verify and use the data entered in the GAIR and the tools available for planning and managing the risk deriving from the spillage of hydrocarbons at sea

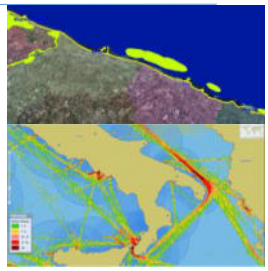
Coastal Oil Spill Vulnerability maps, Map of available response equipments displaced along the coast, Shoreline character, Biological characteristics, Protected area type, Human Use, Acquaculture, Fishing etc.

Testing of the GAIR: main purposes and expectations

GAIR is an important tool (DSS) to support decisions and plan interventions in case of Oil-Spill accident.

Information and maps that it is useful to consult from the GAIR:

1) territorial jurisdiction (territorial limits and activities that take place on the sea and along the coast)
2) geomorphological / environmental characteristics and vulnerability of the areas due to the risk of contamination;
3) type of intervention to be adopted and methods of accessing the areas (from land or from sea)
4) useful equipment, location and transfer times (ready-to-use Database response equipment - if available)
5) areas for sampling to: protect aquaculture, fishing and tourism areas;



Testing of the GAIR: oil-spill exercise

- **Main structures and relevant stakeholders involved during the exercitation and who can use the GAIR**
- **Bodies and authorities (regional and local) that have the skills and responsibilities of intervention in case of oil spill**

Government and Civil Protection bodies
Municipalities (Barletta, Trani and Bisceglie)
Prefecture
Region

Local Civil Protection and emergency bodies
Port Authority /Harbour Master
Voluntary Civil Protection

Operating Centers and Control Rooms
COR-SOIR (Regional Operations Centre of the Civil Protection Service)
COC (Local Crisis Unit)
CFD (Functional Centre of the Civil Protection Service - Apulia Region)

Oil-spill exercise (GAIR "stress test") to be organized in the second half SEPTEMBER 2020

Geoportal use, maintenance and transferability

Priority Actions Programme Regional Activity Centre (Croatia)

Marko Prem, Ph.D.
&
Martina Baučić , Ph.D. – external expert

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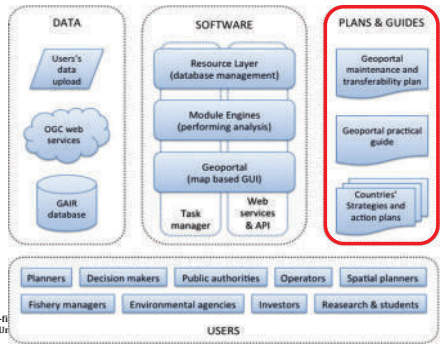
GAIR components



TASK 2.8

Task 2.8.1

Task 2.8.2

Task 2.8.3

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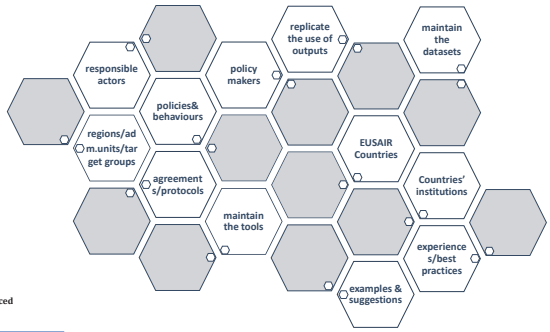
Task 2.8

Aims:

to ensure the widest use and transferability of the results.



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Task 2.8

IN PROGRESS

T 2.8.1 Geoportal maintenance and transferability plan

- Sharing project outputs with the target groups
- Agreements/protocols among institutions on how to maintain the Geoportal datasets and modules
- Geoportal as a living tool within the AIR countries
- Possibility of a political decision within the EUSAIR
- Transferability to other Mediterranean sub-regions and other EU regional seas

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Task 2.8

NOT STARTED

T 2.8.2 Geoportal Practical Guide

- A practical guide based on manuals provided by the developers of the Geoportal and modules
- Examples and experiences gained in testing activities
- To be used in other Adriatic-Ionian Region (AIR) areas and in a wider Mediterranean context

Task 2.8

IN PROGRESS

T 2.8.3 Strategies and action plans on 4 testing areas of the Geoportal (PPs from Italy (RER), Slovenia, Croatia and Greece)

- Country specific strategies/action plans
- Target groups/responsible administrative levels/organisations for MSP/ICZM
- A road map on how the Geoportal will remain in use after the end of the project

T 2.8.3
Strategies and action plans on 4 testing areas of the Geoportal
PPs from Italy (RER), Slovenia, Croatia and Greece

STRUCTURE – 5 chapters

1. **PORTODIMARE project – done by PAP/RAC**
   - GAIR development
   - GAIR modules

2. Maritime Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM) process and planning steps – done by PAP/RAC
- Objectives and principles
- Importance of land-sea interactions
- GAIR – a tool supporting MSP processes
- Transnational cooperation

Chapters 1 and 2 are prepared by PAP/RAC for all 4 partners.

T 2.8.3
Strategies and action plans on 4 testing areas of the Geoportal
PPs from Italy (RER), Slovenia, Croatia and Greece

STRUCTURE – 5 chapters

3. MSP and ICZM in country X – in progress by Country PP
- Legal framework and responsible institutions and stakeholders
- Preparation of maritime spatial plans or coastal management plans

4. Testing area - in progress by Country PP
- Presentation of the testing area
- Modules tested
- Results

5. Plans and recommendations for maritime spatial plans and/or coastal management plans – in progress by Country PP

Country PP:
- Croatia- ZPUIZ
- Greece- HCMR
- Italy- RER DGCTA
- Slovenia- RRC Koper

Chapters 3-5 are country specific and prepared by PP (with assistance of PAP/RAC if needed).

T 2.8.3
Strategies and action plans on 4 testing areas of the Geoportal
PPs from Italy (RER), Slovenia, Croatia and Greece

Country PP:
- Croatia- ZPUIZ
- Greece- HCMR
- Italy- RER DGCTA
- Slovenia- RRC Koper

3. MSP and ICZM in country X

- **Legal framework and responsible institutions and stakeholders**

Present:
- the legal frame for the preparation of maritime spatial plans and /or coastal management plans in your country/region (with links to national level);
- experience/state of the art in the country/region
- which are the responsible institutions and the main stakeholders involved in the MSP process, and their role.

- **Preparation of maritime spatial plans or coastal management plans**

Present the current status of the preparation of the maritime spatial plans and coastal management plans in your country including the consultation process with the stakeholders.

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Country PP:
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- Italy- RER DGCTA
- Slovenia- RRC Koper

4. Testing area in country X

Present what you have done in your testing area:
- **Presentation of the testing area**

describe the area and its main environmental/development problems (illustrate with maps)
- **Modules tested**

present which modules and how you have tested; justify why those modules describe methodology followed in order to define objectives; steps of analysis, the choices, main constraints and solutions
- **Results**

Present the results of testing and their relevance for the preparation of the maritime spatial plans and/or coastal management plans

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T 2.8.3
Strategies and action plans on 4 testing areas of the Geoportal
PPs from Italy (RER), Slovenia, Croatia and Greece

Country PP:
- Croatia- ZPUIZ
- Greece- HCMR
- Italy- RER DGCTA
- Slovenia- RRC Koper

5. Plans and recommendations for maritime spatial plans and/or coastal management plans in country X

Extract contribution from your testing area to the preparation of (national) maritime spatial plan in order to liaise your results with national/regional process including:
- *Suggest your vision and scenarios for dealing with the topic you have been testing to be included in maritime spatial plan and/or coastal management plan*
- *Provide map(s) with the final results including explanatory text*
- *Provide recommendations as a contribution to the maritime spatial plan and if relevant for the coastal management plan in your country*
- *Justify/provide usefulness and relevance of your results for the transnational context*
- *Proposals for the maintenance of the GAIR at county level (which institutions, which data, how, etc.)*

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T 2.8.1
Geoportal maintenance and transferability plan

PROPOSED STRUCTURE (the first idea)

1. Introduction and objectives

2. About Portodimare

3. GAIR: geoportal and its modules

4. GAIR Testing and Results
(focus on GAIR moduls' support to MSP steps)

5. GAIR Maintenance

6. Transferability plan

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T 2.8.1
Geoportal maintenance and transferability plan

PROPOSED STRUCTURE (first idea)

5. GAIR Maintenance

WHY

GAIR as the crucial portal for spatial data collection in AIR/ important for the implementation of EUSAIR an other policies in the sub-region of EU, usage, availability of tools/modules for the countries, stakeholders, institutions etc.

HOW

- **Data maintenance**

Whose responsibility it is to maintain it, how to establish links with data providers between the GAIR host (Emilia-Romagna Region.RER) and other Italian regions and other AI countries (MoU/contracts, that should specify data sharing policy and alike; maybe a 'political decision at EUSAIR level).

- **Software modules/tools maintenance**
- **IT infrastructure (hosting and administrating GAIR)**

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T 2.8.1
Geoportal maintenance and transferability plan

PROPOSED STRUCTURE (first idea)

6. Transferability plan

How GAIR will be transfered out of the Portodimare partnership so to become a central portal for ICZM/MSP in the AIR.

- *Transfer/promote it within ADRION EU programme, so new and current projects (HARMONIA, IMPRECO) in the region will use and update it*
- *The role of EUSAIR- to guarantee/provide political support*
- *Transferability within each country to new/relevant institutions that collect/hold relevant data. Role of project partners.*
- *Transferability/promotion out of AIR; other regional seas of Europe, and within the Mediteranean in particular (through the Barcelona Convention UNEP/MAP system; its National Focal Points-NFP, including those NFPs from PAP/RAC (at COP conferences, NFPs meeetings; a brochure could be prepared, presentation at the meetings)*

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T 2.8.2
Geoportal Practical Guide

TO BE STARTED AFTER THIS WORKSHOP

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Task 2.8 – a road map

	Deliverable name and project deadline	Deadline for PP contribution	PP contribution	PP contact person
T2.8.1	Geoportal maintenance and transferability plan Chapters: 3. GAIR: geoportal and its modules 4. GAIR Testing and Results (focus on GAIR moduls' support to MSP steps)	Summary about testing on Pilot sites 30th of June	Testing and results: Pilot site 1 - ZPUIZ (Cro)	
			Pilot site 2 - RER-DGCTA (It)	
			Pilot site 3 - HCMR (Gr)	
			Pilot site 4 - OOMM (It)	
			Pilot site 5 - RRC (Sl)	
			Pilot site 6 - CP (It)	
T2.8.2	Geoportal Practical Guide	Finalised manuals 30th of June	Module manual: MUC – CORILA-CNR	
			CEA – CORILA-CNR	
			AZA – CORILA-CNR	
			Particle/conservative contaminants dispersion – CORILA-CNR	
			Coastal Oil Spill Vulnerability Assessment – CP Appulia	
			SSF – HCMR	
			MSF – HCMR	

Thank you for your attention.

Opening discussion & questions