



INCEPTION REPORT
(Athens, 31 – 1 – 2015)

***Paving the Road to Marine Spatial Planning
in the Mediterranean***



Marine Spatial Planning Mediterranean • Greece



PAVING THE ROAD TO MARINE SPATIAL PLANNING IN THE MEDITERRANEAN

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ABBREVIATIONS

BP	Blue Plan
CBD	Convention on Biodiversity
CAMP	Coastal Area Management Programme
CEMAT	<i>Conférence Européenne des Ministres de l'Aménagement du Territoire</i>
COP	Conference of Parties
CP	Contracting Parties
EC	European Commission
EcAp	Ecosystems-based Approach
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EP	European Parliament
EU	European Union
FP	Focal Point
GES	Good Environmental Status
HCMR	Hellenic Centre for Marine Research
ICZM	Integrated Coastal Zone Management
IOC	Intergovernmental Oceanographic Commission
MAP	Mediterranean Action Plan
SEA	Strategic Environmental Assessment
MEECC	Ministry of the Environment, Energy & Climate Change, Greece
MPREE	Ministry of Productive Reconstruction, Environment and Energy
MS	Member State
MSFD	Marine Strategy Framework Directive (EU)
MSP	Marine Spatial Planning
MSSD	Mediterranean Strategy for Sustainable Development
NFP	National Focal Point
NGO	Non-Governmental Organisation
PAP	Priorities Action Programme
SPA	Specially Protected Areas
RAC	Regional Activity Centre
UNEP	United Nations Environment Programme
UTH	University of Thessaly



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1. INTRODUCTION

1.A GENERAL FRAMEWORK

This project was commissioned by the Priority Actions Programme Regional Activity Centre (PAP/RAC), one of the six Regional Activity Centres of the Mediterranean Action Plan (MAP/UNEP), from the University of Thessaly, in an effort to facilitate the implementation of the Protocol on Integrated Coastal Zone Management (ICZM) in the Mediterranean – the ICZM Protocol.

The following facts have been taken into consideration:

- Art. 3 of the ICZM Protocol, which sets the seaward boundary of the coastal zone at the external limit of the territorial sea of the Contracting Parties (CPs) to the Barcelona Convention;
- the statement made by the UNEP/MAP National Focal Points (NFPs) at their meeting held in Athens in September 2013, which was endorsed by the 18th Ordinary Meeting of the Contracting Parties to the Barcelona Convention (COP18) held in Istanbul in December 2013, that “marine spatial planning was a significant avenue to be explored for the future of MAP and in particular for the implementation of the ICZM Protocol” and that “given its potential and the work already done by PAP/RAC on marine spatial planning, provision should be made for further development of related activities in the programme of work“;
- the entry into force of the EU Directive of July 2014 establishing a framework for maritime spatial planning; and
- the particular interest expressed by Greece, through its NFPs for UNEP/MAP and PAP/RAC, to undertake a pilot project to explore the legal, institutional, scientific and methodological prerequisites, in order to support the implementation of the ICZM Protocol and in particular its provisions related to the planning and management of the marine space.

Carrying out of such a project in Greece has a double advantage since the country has the longest coastline in the Mediterranean and it is at the same time a Contracting Party (CP) to the Barcelona Convention and a Member State (MS) of the European Union (EU). Therefore, the outcomes of the project can combine the elements needed for the implementation of both the ICZM Protocol and the respective EC Directive.



Thus, the project can be beneficial, on the one hand, to the CPs that are also EU/MS who can avoid overlapping of actions and unnecessary administrative burden and on the other hand, to the non-EU CP that could be inspired by the experience of the others.

This project offers also a triple opportunity to:

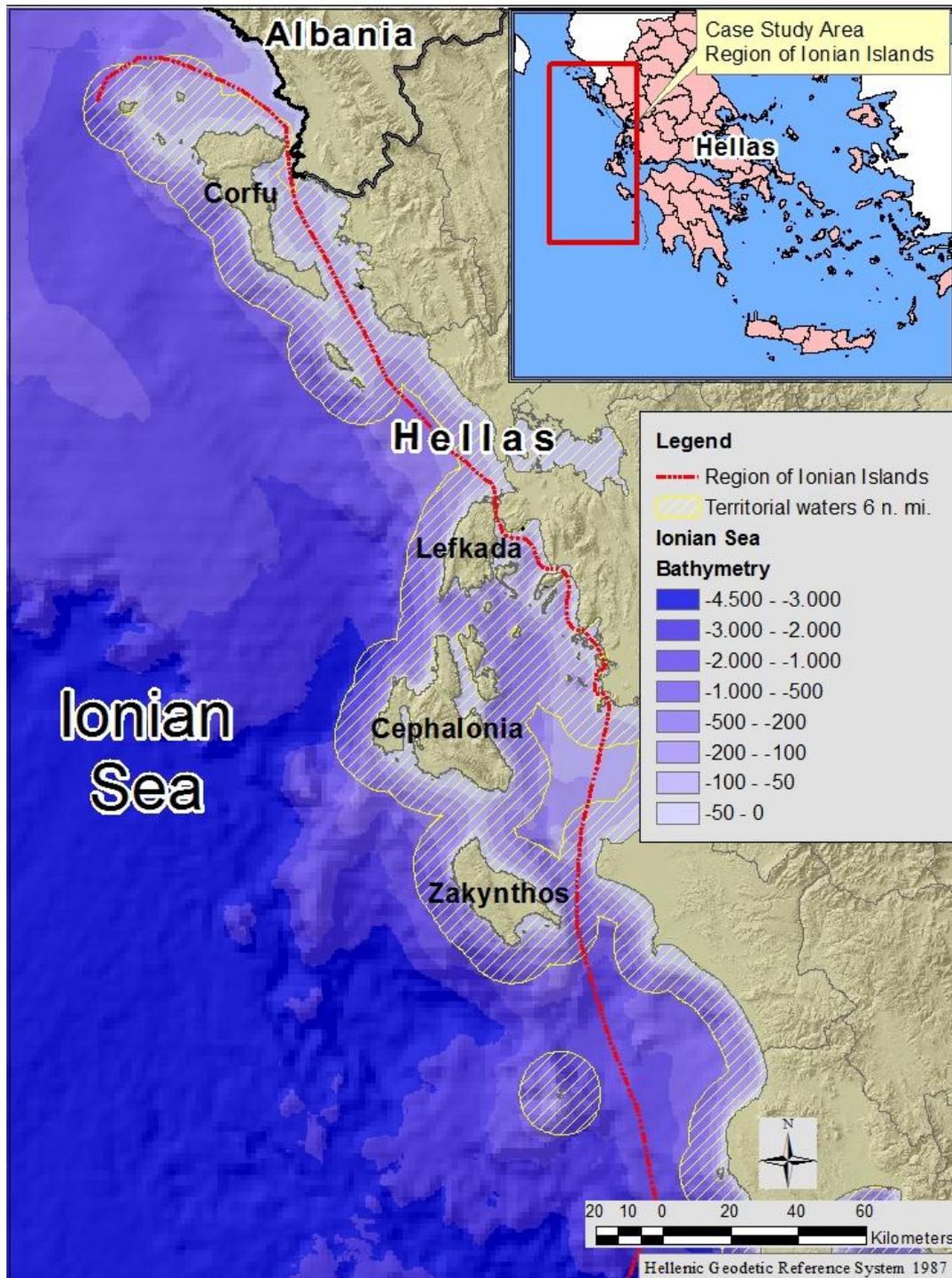
1. Network with the Coastal Area Management Programme (CAMP) projects, concluded and/or on-going in the Mediterranean, and thus contribute to both exchange of experience and interactions of land and sea planning in coastal zones;
2. Combine planning at the national level with consultations and implementation needed at the regional level through a case study in one of the insular Greek Regions, that of the Ionian Islands (see Map 1 that follows); this can also contribute to exploring and promoting proper governance schemes;
3. Incorporate the principles of ecosystems-based approach (EcAp) and good environmental status (GES) in the marine spatial planning (MSP).

The ICZM Protocol includes several explicit references to marine spatial planning providing the legal basis for planning and management in the Mediterranean. There are also several provisions related to measures of a horizontal nature, which apply to both the land and the sea part of the coastal zones. What one cannot find in the Protocol is the ways to implement the commitments within each CP; this is absolutely natural since such ways depend on the specific conditions of and policies in each of the Mediterranean countries. The current project intends to contribute by offering some responses to the question “how” as regards the implementation at national and regional levels.

To this end,

- Other commitments under different relevant legal and/or institutional contexts will be taken into consideration (e.g., the EU Marine Strategy Framework Directive (MSFD), the United Nations Convention on the Law of the Sea (UNCLOS), the Mediterranean Strategy for Sustainable Development (MSSD), currently under revision;
- Relevant methodological tools developed and/or used within other projects as well as good practices will be evaluated briefly, in an effort to identify those which fit better to the Mediterranean conditions and also to build upon the most appropriate ones, use them for the case study and – if possible – further develop them;

- There will be as much co-operation as feasible, given the small scale of the project, with major authorities and stakeholders related to the MSP issues.



Map 1: The case study area (Region of the Ionian Islands)



Source: processed by the core project team

The timing for the project is good for the promotion of the MSP issues in Greece as well, since the competent authorities are in the process of identifying the necessary steps to facilitate the implementation of both the ICZM Protocol and the MSP EU Directive in concrete ways. Though Greece has not ratified the ICZM Protocol as yet, it is broadly understood that, after the accession of the EU to the Protocol, it constitutes part of the *acquis communautaire* and, therefore, its provisions are equally binding for Greece as if the ratification had already taken place. Furthermore, the revision of the MSSD is expected to be completed soon and, therefore, a framework strategy will be in place offering the necessary vision and acting as the overarching Mediterranean policy where the national or sub-regional marine plans could fit.

Greece has only a limited experience in practicing MSP so far: two hybrid plans for the Zakynthos and Sporades marine parks, aiming at protecting the threatened species (marine turtle and monk seal, respectively) through restriction of some marine and land uses, as well as a framework spatial plan for one specific use only, aquaculture.

Given the fact that MSP has several special characteristics diversifying it from the spatial planning on land and that the related experience in the USA, Australia or the northern European countries cannot be automatically transferred and applied in the Mediterranean countries, the project team has preferred to follow a prudent approach, compile relevant information, evaluate the existing tools, tackle the MSP issues step by step and, where appropriate, suggest alternative methods and tools.

To this end, the Region of the Ionian Islands has been selected as a case study combining a number of challenging characteristics.

1.B MAIN PROBLEMS IN THE CASE STUDY AREA (THE IONIAN ISLANDS)

The Ionian Sea (Division 37.2.2) is geographically defined in three sub-areas: the Western Ionian Sea (sub-area 19), Eastern Ionian Sea (sub-area 20) and Southern Ionian Sea (sub-area 21) (FAO 2011) and is located at the Eastern part of the Mediterranean, bounded to the west by the Italian coast and to the east by the Greek coast (D'Onghia et al. 2003). Diverse geomorphology characterizes the area which gives unexpected and uncalculated earthquakes, mass movements from the shelf to the deeper zone. Submarine canyons are located along the Western Ionian coasts being potential refuge for many bathyal and endemic species (Gili et al. 1998). The Ionian Sea constitutes a vital area for biodiversity while it hosts critically endangered species and key populations of marine mammals and reptiles under threat and it presents some key priority habitat (SoHeIME, 2005; SoHeFI, 2007).



The main maritime activities emerging in the Ionian Sea are maritime transport (passengers - cruise), fisheries, coastal tourism, cables and pipelines, wind farms aquaculture, Marine Protected Areas and Site of Conservation Interest (Med-IAMER, 2014).

The needs and priorities in the Ionian Sea that could be tackled through MSP initiatives have been identified through activities within the ADRIPLAN project including interaction with key stakeholders in the area. National and regional administrators and end users through semi structured interviews provided feedback and main issues have been identified (ADRIPLAN, 2014):

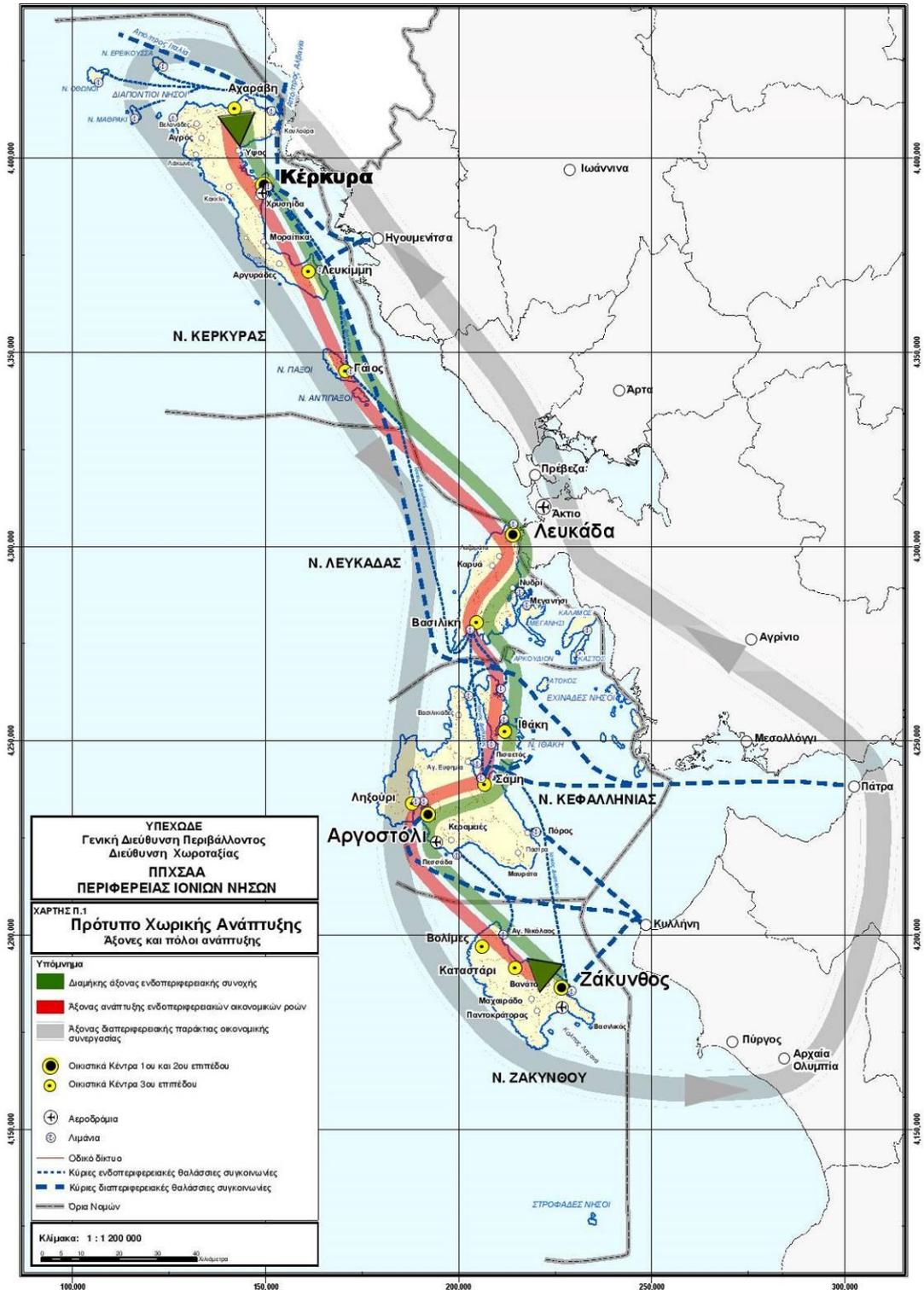
- Aquaculture vs. other economic activities (mainly tourism, Sagiada case);
- Fisheries (intra-sectoral conflicts in the Corfu Strait between trawl and small-scale fisheries);
- Fisheries conflicts between neighbouring countries;
- Coexistence of incompatible activities such as sewage treatment and oil storage;
- Impacts from aquaculture development;
- Competition of uses in ports (Fishing shelters and tourism ports).

Main barriers in achieving blue development and blue growth in the area appeared to be bureaucracy, lack of legislation, policy agreements - particularly for cross-border issues raising jurisdictional disputes (e.g. in deep sea fisheries), fragmented dialogue, lack of a management body in areas of conservation importance (i.e. Natura sites), lack of integration amongst administration levels, lack of engaging stakeholders in decision making (ADRIPLAN, 2014), as well as synergies between sectors as a fruitful way of co-operation.

Indeed, through the IMP–Med project it became evident that there is priority in increasing stakeholder capacity building in the Mediterranean along with the development of a common strategy for an integrated sea basin perspective. The latter would result in realizing key opportunities and increasing synergies between sectors.

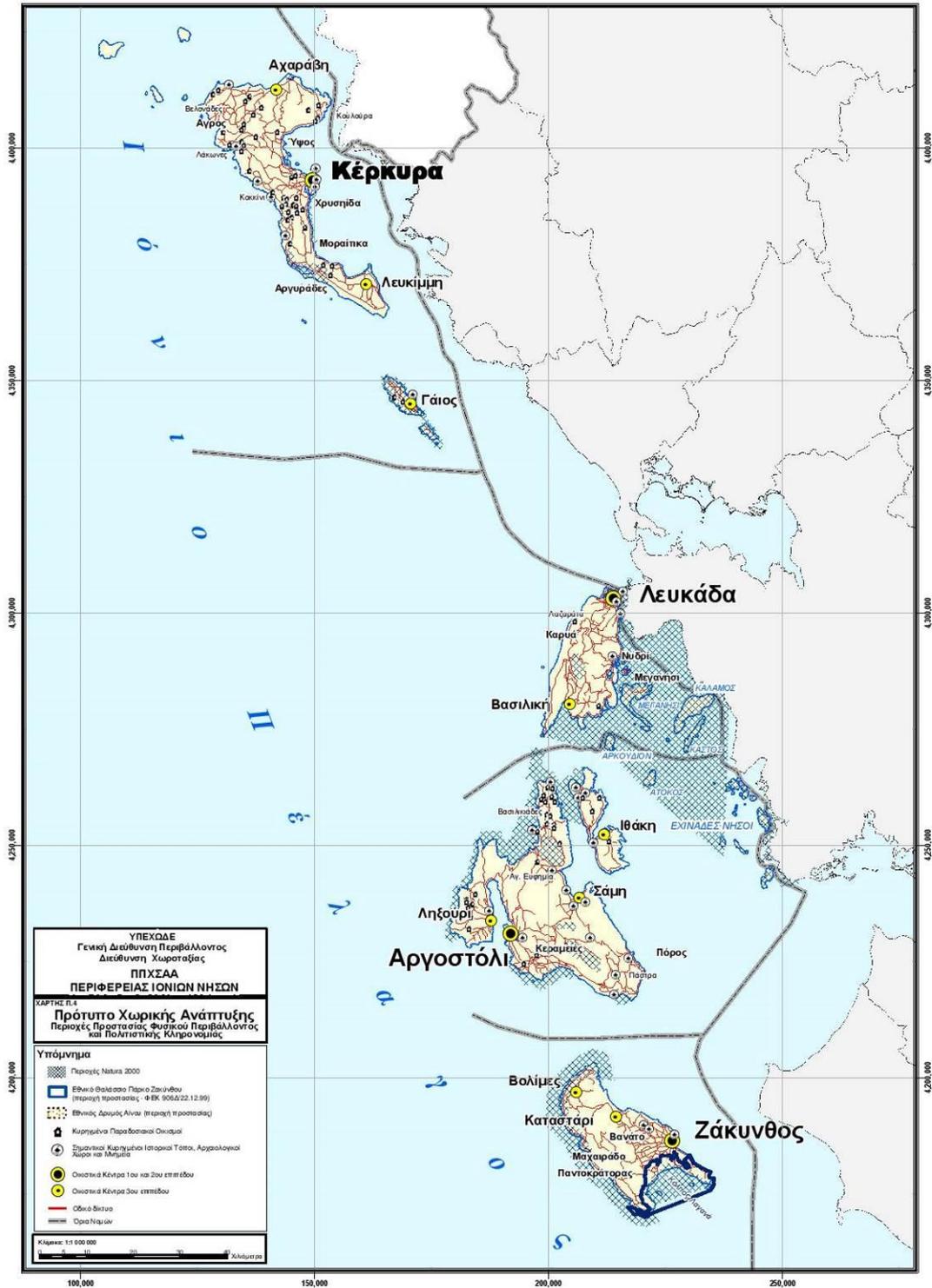
Moreover, conflicts between sea uses in the Ionian Sea reflect ambiguities between EU policies (i.e. Conservation and the Common Fisheries Policy). Also, the lack of a clear international framework for Integrated Coastal Zone Management (ICZM) leaves room to the national authorities to formulate sectoral spatial plans, which are rather vague and sometimes fuel conflicts instead of mitigating them (MESMA, 2013).

Certain points mentioned above will be tackled within the project with the aim to consolidate co-operation among relevant authorities, to provide recommendations for better governance and support effective MSP activities. Proposals will take account also of the development model agreed upon already in 2004 for the area by the Regional Spatial Plan (currently under revision) – see Maps 2, 3 and 4.



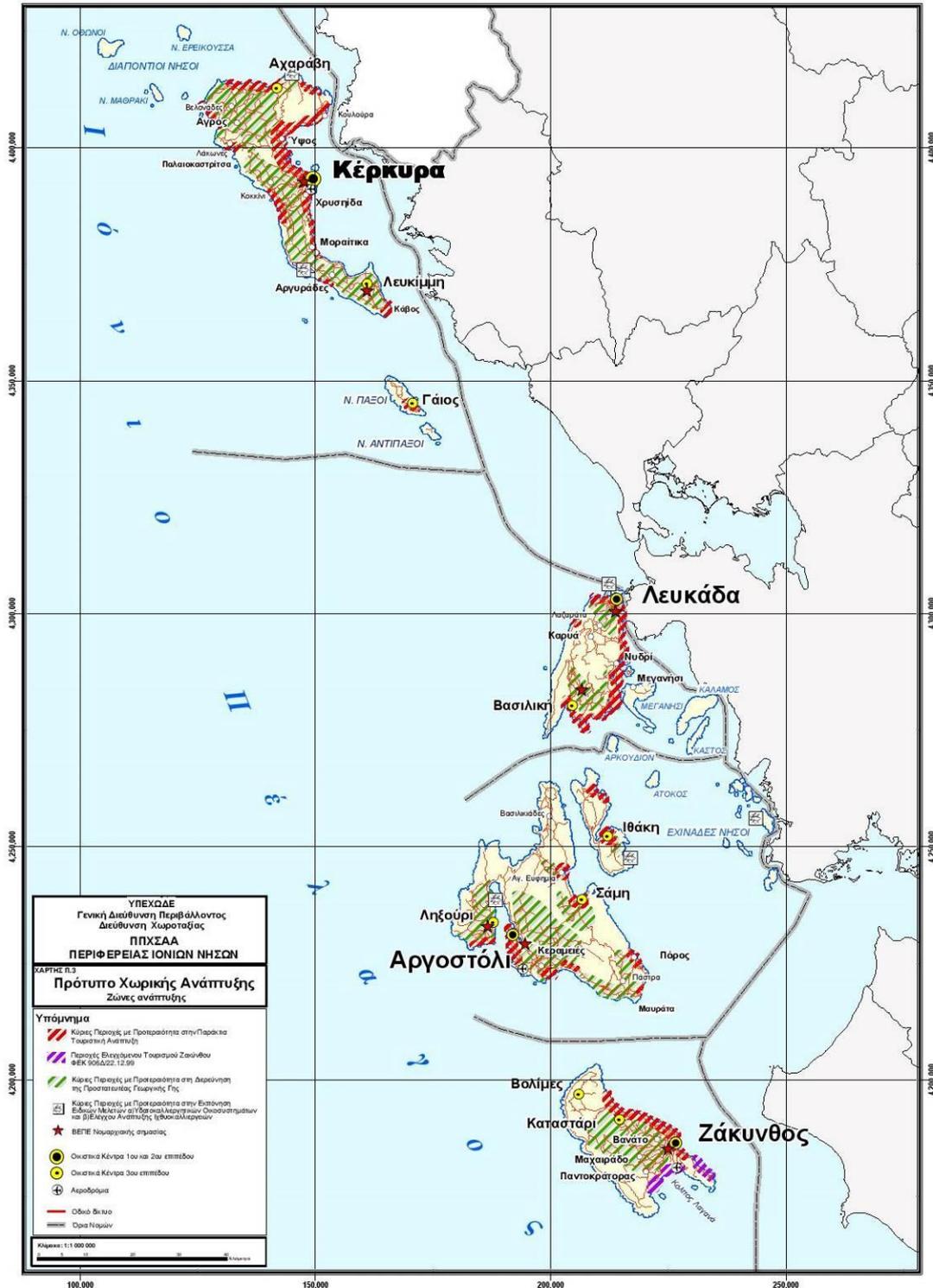
Map 2: Proposed Axis and Poles of Development in the Region of Ionian Islands according to the official Regional Spatial Plan (adopted in 2004)

Source: Official Gazette No 56/B (Date: 19.01.2004)



Map 3: Proposed Areas of Natural Environment and Cultural Heritage in the Region of Ionian Islands according to the official Regional Spatial Plan (adopted in 2004)

Source: Official Gazette No 56/B (Date: 19.01.2004)



Map 4: Proposed Zones of Development in the Region of Ionian Islands according to the official Regional Spatial Plan (adopted in 2004)

Source: Official Gazette No 56/B (Date: 19.01.2004)



1.C OTHER PROJECTS IN THE CASE STUDY AREA AND TOOLS DEVELOPED

The project will build upon previous projects tackling MSP/ICZM issues that were carried out in the Mediterranean, as well as in other regions, and will try to apply some of the tools developed or used by them (e.g. cumulative impact mapping). When formulating proposals, the project will also take into account the Ecosystem-based Approach (EcAp) and build also upon the EcAp indicators.

Projects that were carried out in the Adriatic – Ionian Sea are presented in Table 1. Table 2 lists international projects providing useful methodologies on MSP. In particular for the Mediterranean, one can also mention the Med – Iamer, IMP – Med and EcAP–Med projects, the outcomes of which will be considered too under the current project.

Table 1: Projects carried out in the Adriatic – Ionian Sea

Project	Funding scheme / Customer	Relevance to the Adriatic - Ionian Sea
ADRIAMED	MiPAAF - FAO	Scientific Co-operation to Support Responsible Fisheries in the Adriatic Sea
ADRIAMOS	DG MOVE	Sea-based transport service integrated in the logistic chain along the Adriatic-Ionian transport corridor
ADRIAPAN	Adriatic Protected Areas Network	Adriatic Protected Areas Network
ADRI.BLU	INTERREG	Stakeholder involvement for sustainable fishery in the northern Adriatic Sea
ADRICOSM	All	Integrated coastal zone management system in the Adriatic Sea
ADRIFISH	INTERREG	Sustainable fishery in the northern Adriatic Sea
ADRIPLAN	DG MARE	Cross – border MSP Adriatic-Ionian Sea
APICE	MED	Maritime activities in the Adriatic
BALMAS	IPA	Maritime transport; ballast water management
BEACHMED	MED	Best practices for coastal management – defense
CADSEALAND	INTERREG III	Land-sea interaction: coastal state and evolution
CAMP	PAP/RAC	Coastal zone management
COASTANCE	IPA	ICZM in the Adriatic
COCONET	FP7	Investigation of synergy between MPAs and OWFs
DeFishGear	IPA	Marine litter
EM Master Course on MSP	Erasmus Mundus	Networking and stakeholder involvement
EASTMED	DG MARE - MiPAAF – HMRDF – FAO	Scientific and Institutional Co-operation to Support Responsible Fisheries in the Eastern Mediterranean
ECOSEA	IPA	Sustainable fishery in the Adriatic
EcoSea	IPA	Sea & coastal environment protection; Fisheries
EMODNET-Chemistry	DG MARE	Environmental data collection in the North Adriatic

PP 2009-2012		
EMODNET-Chemistry 2	DG MARE	Products for MSFD needs in the Mediterranean Sea
GHOST	LIFE+	Ghost fishing - preservation of biodiversity
HAZADR	IPA	Risk prevention management in the Adriatic
HAZADR	ADRIATIC-IPA	Cross-border network for the prevention of risks and for the early management of emergencies
<u>IONAS</u>	INTERACT	Partnership between European ports and cities and ports and cities from the neighbouring countries in the Adriatic and Ionian area
MAREMED	MED	ICZM in the Adriatic
MARLISCO	FP7	Marine Litter
MICORE	FP7	Coastal Defense/CCA in the northern Adriatic
NATREG	SEE	Management of MPA
NETCET	IPA CBC Adriatic Programme	Common strategies for the conservation of cetaceans and sea turtles in the Adriatic ADRIPLAN – Adriatic-Ionian maritime spatial planning AIP-1.2-1.1 Initial Assessment 30 through pan-Adriatic co-operation
<u>OBAS</u>	INTERREG III	Biological Oceanography of the Northern Adriatic
PEGASO	FP7	Stakeholder involvement; ecosystem-based approach; ICZM
Perseus	FP7	Stakeholder involvement; ecosystem-based approach
PlanCoast	INTERREG	ICZM/MSP in the Adriatic
RITMARE	MIUR-IT	Ecosystem-based approach; sustainable fishery; ICZM/MSP in the Adriatic-Ionian Sea
SHAPE	IPA	ICZM/MSP in the Adriatic
SPICOSA	FP6	Ecosystem, anthropogenic pressures
THESEUS	FP7	Coastal Defense/CCA in the northern Adriatic
TRECORALA	INTERREG IT-SLO	Rocky outcrops and coralligenous formations in the northern Adriatic
TOSCA	FP7	Marine accidents in the Mediterranean concerning oil spill pollution and search and rescue (SAR) operations
-	INTERREG II	Interventions for the water protection

Source: processed by the core project team

Table 2: International projects providing useful methodologies on MSP

Project	Funding scheme / Customer	Relevance to the project/ tools
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Balance	INTERREG	Marine nature conservation
BaltSeaPlan	INTERREG	Experience of MSP in a transboundary context
BONUS	FP7	Proposals for maritime activities
CLEANSEANET	EMSA	Satellite oil spill monitoring
COEXIST	FP7	Sustainable fishery
ECASA	FP6	Ecosystem approach to the aquaculture sector
<u>EUROISLANDS</u>	<u>ESPON</u>	The Development of the Islands – European Islands and Cohesion Policy
<u>ESaTDOR</u>	<u>ESPON</u>	European Seas and Territorial Development, Opportunities and Risks
<u>ENCORA</u>	<u>FP6</u>	Advancing Sustainable Management of Coastal Zones
HERMES	FP7	Establishing a CompreHEnsive transport Research information Management and Exchange System
KnowSeas	FP7	Ecosystem approach and stakeholder involvement
MARSAFENET	COST	Maritime security and safety
MASPNOSE	DG MARE	Experience of MSP in a transboundary context
MESMA	FP7	Monitoring and evaluation of spatially managed areas
ODEMM	FP7	Ecosystem approach and stakeholder involvement
Ourcoast	DG ENV	ICZM/MSP
PISCES	LIFE+	Ecosystem approach and stakeholder involvement
PEGASO	FP7	Proposals for Knowledge Base, Cumulative Impact assessment, Integrated Regional Assessment, Scenaria, Indicators, Governance
PlanBothnia	DG MARE	Experience of MSP in a transboundary context
TPEA	DG MARE	Maritime spatial planning (MSP) in the European Atlantic region.

Source: processed by the core project team

1.D MEMORANDUM OF AGREEMENT AND ACTIONS FORESEEN

The Memorandum of Agreement (MoA) sets out the 1st of December 2014 as the starting date of the project and the 30th of November 2015 as the finishing date (total duration 12 months).

According to the MoA, the main actions foreseen are the following:

- Preparation of the Inception Report describing in detail the project activities, outputs and deliverables;



- Implementation of the project activities as presented in the Inception Report and agreed upon with PAP/RAC;
- Organization of the project meetings. At least three meetings of the partners will take place: one at the beginning (kick-off/inception), one in the middle (for co-ordination, focusing on main actions, etc.) and one at the end of the project (with major end users, for fine-tuning and dissemination – a part of it could be in the form of a workshop). Consultation meetings will also be organized;
- Preparation of questionnaires to be filled-in by the PAP/RAC NFPs and/or local stakeholders;
- Establishment of a small network with the aim of connecting the PAP/RAC NFPs who carry out the CAMPs in Montenegro, Italy and France with other RACs of MAP in particular the Blue Plan and SPA/RAC.
- Preparation and submission to PAP/RAC of the Minutes of the Meetings organized;
- Preparation and submission to PAP/RAC of the Draft Project Report with its deliverables;
- Presentation of the project at the PAP/RAC NFPs meeting to be held in May 2015;
- Preparation and submission to PAP/RAC of the Final Project Report with its deliverables.

The above-mentioned Reports will be submitted to PAP/RAC for clearance within the deadlines indicated in the Memorandum of Agreement and the Minutes of the meetings within a week time after each meeting takes place. They will be written in English and submitted in a digital form.

The Final report of the project with its deliverables will be made available for the use of the Contracting Parties (CPs) as appropriate through the PAP/RAC website and through the websites of the University of Thessaly and the Hellenic Ministry of Productive Reconstruction, Environment and Energy (as MEECC has been recently renamed).

2. INCEPTION REPORT: GENERAL GOALS AND PREPARATION ACTIVITIES

2.A GOALS

The goals of the Inception Report and Meeting can be divided into two categories: the organizational and the essential ones.

The organizational goals include:



- Initiation (kick-off) of the project;
- Activation of all partners and consolidation of co-operation with all members of the core-team;
- Consolidation of co-operation among relevant authorities (Ministries, Institutions, etc.) and the project team, for the facilitation of the programme implementation and the provision of the necessary information;
- Finalization of other operational and procedural details of the project.

On the other hand, the essential goals include:

- Definition of the methodological approach of the project;
- Identification of the regional and local authorities' scheme (participating as partners in the project);
- Discussion on details and finalization of the study area in the Ionian Islands Region;
- Discussion and preliminary preparation of the Questionnaires (for the collection of data from the rest of the PAP/RAC NFPs, as well as the regional/local stakeholders).

2.B INCEPTION MEETING

The Inception Meeting of the project was held in Athens (Greece) on the 30th of January 2015, at the premises offered kindly by the Technical Chamber of Greece. Apart from the team and partners, invitations to attend the meeting were also sent to the:

- Ministry of Environment, Energy and Climate Change (MEECC)
 - Directorate of Spatial Planning
 - Department of International Affairs
 - Department of Nature Management
- Ministry of Navigation and the Aegean, Directorate for the Protection of Marine Environment
- Ministry of Culture, Directorate of Underwater Antiquities
- Ministry of Tourism, Directorate of Studies and Investments
- Ministry of Rural and Agricultural Development, Directorate of Fisheries
- Technical Chamber of Greece, President of the Executive Board



- Region of Ionian Islands, Directorate of the Environment
- Association of Municipalities (1st tier local authorities) of the Region of Ionian Islands - President's Office
- Managing Authority of the National Marine Park of Zakynthos

Co-ordinators of some other CAMPs were informed about the meeting and the National Co-ordinator of CAMP Italy, Ms. Daniela Addis, sent her greeting message (included in Annex I).

The core team of the project had opted for a form of “working session” for this kick-off meeting, taking also into consideration the electoral period and the recent political changes.

The Agenda of the Meeting included invited speakers from all the partners of the project as well as from the contracting authority. More precisely, interventions made regarded the following topics:

- The Mediterranean context and the ICZM Protocol (**Mr. Atila Uras**, Programme Officer, MAP/UNEP)
- Marine Spatial Planning (MSP) commitments under the ICZM Protocol and the MSP Directive/EU (**Dr. Athena Mourmouris**, Hon. Director General for the Environment)
- Main objectives and benchmarks of the project (**Prof. Elias Beriatos**, University of Thessaly)
- The Regional Spatial Planning in Greece: a framework for the Ionian Island (**Ms. Maria Rabavilla**, Spatial Planning Directorate, MEECC)
- Problems of a typical Region related to MSP (**Mr. C. Scordilis**, Environment Director, Region of the Ionian Islands)
- Marine ecosystems of the Ionian Sea and human activities: methodologies to study the conflicts and the impacts (**Dr. Vassiliki Vassilopoulou**, Hellenic Centre of Marine Research)

Interesting contributions and comments were made by the rest of the participants, during all parts of the Meeting.

2.C ACTIVITIES CARRIED OUT FOR THE PREPARATION OF THE REPORT

In view of the Inception Meeting and the preparation of the Inception Report, two internal meetings took place involving all core-team members of the project, beyond the frequent bilateral contacts between the two co-ordinating members.



1st team meeting (Athens, 16 January 2015)

The agenda of the meeting – that all core-team members attended – included:

- discussion on the structure and the table of contents of the Inception Report;
- distribution of tasks among team members;
- finalization of the Agenda of the Inception Meeting (scheduled to take place on the 30th of January 2015);
- Discussion on other issues.

2nd team meeting (Athens, 26 January 2015)

- Discussion on methodological approaches and details of the project;
- Discussion on organizational issues regarding the Inception Meeting.

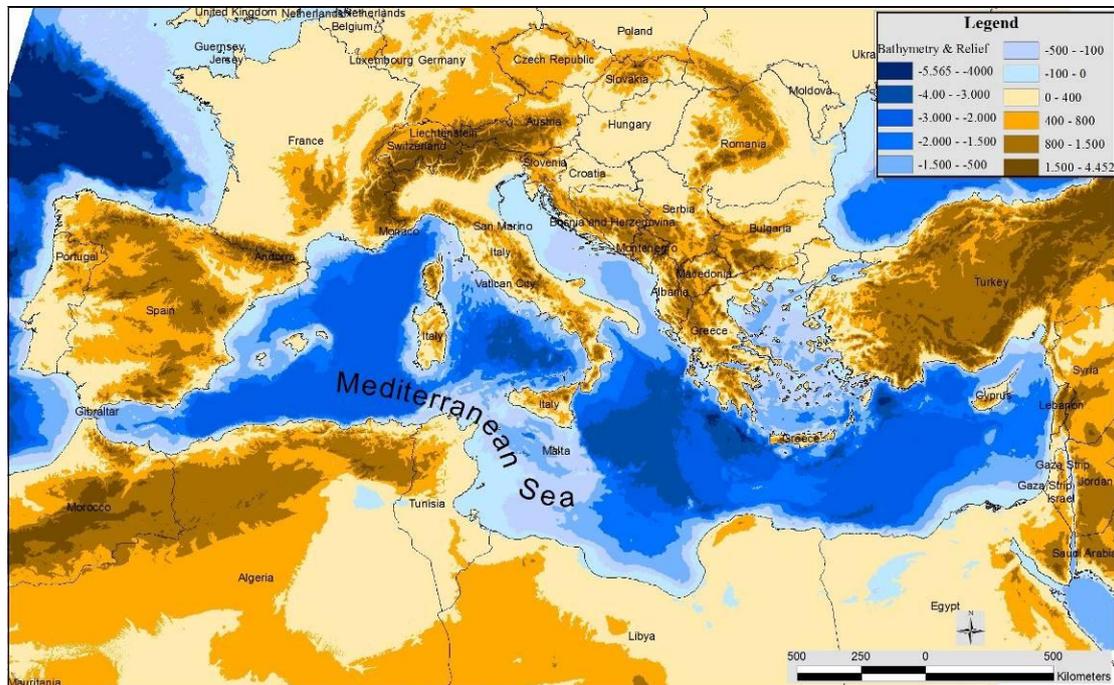
Apart from these meetings, communications with relevant Authorities and Institutions, and in particular those based in the Region of the Ionian Islands, were also substantial part of the preparation agenda towards the Inception Meeting.

3. PROJECT GOALS AND STRUCTURE/ORGANISATION

3.A PROJECT GOALS AND OBJECTIVES

The Mediterranean Basin is a fragile coastal and marine ecosystem, undergoing tremendous pressure due its nature and its use by the multi-cultural nations living along its inter-continental coasts, as well as the tourists originating from all over the world. Therefore, it is of paramount importance that it is judiciously preserved and used for the common benefit of all people.

The ICZM Protocol of the Barcelona Convention, adopted in 2008, aims to ensure integrated coastal zone management of the Mediterranean, through co-operation amongst the Contracting Parties (CPs) and covers both the land and the marine part of the coastal zone. This approach is reflected in the Action Plan for the implementation of the ICZM Protocol in 2012-2019, adopted by the CPs in 2012. The Geomorphological map of the Mediterranean Basin (i.e. the area of PAP/RAC responsibility) is presented in Map 5.



Map 5: Geomorphological map of the Mediterranean Basin (area of PAP/RAC responsibility)

Source: processed by the core project team

In this framework, the project - that is of a pilot nature - intends to facilitate the implementation of the ICZM Protocol, in particular with regard to Marine Spatial Planning (MSP), by developing methodological tools, proposing possible co-operation/management schemes and identifying prerequisites and possible ways to deal with the challenges, in an effort to assist the CPs to meet the common objectives of integrated marine spatial planning and management.

In particular, the aim of the project is to produce methodological tools, which will serve as a guide to all CPs involved, in order to formulate or further strengthen their own national MSP systems, keeping always in mind the various needs and specificities (natural, social, economic and institutional) of all involved CPs at national and regional levels. Such tools can have a special added value in particular after the adoption of the EU Directive on MSP, which makes it compulsory for the CPs that are at the same time EU Member States to apply MSP in their territorial waters. Non-EU CPs could certainly profit from such a development in the region.

3.B THE CORE TEAM – CO-ORDINATION

The composition of the core team of the project is as follows:



Core Team of the Project

BERIATOS Elias, Prof. in Geography, Spatial and Environmental Planning / Director of GREEN_PLAN Laboratory, DPRD-UTH (Co-ordinator of the Programme)

MOURMOURIS Athena (PhD), Honorary Director General of MEECC – Environmental Engineer and Planner (Policy guidance, contribution to co-ordination and governance)

PAPAGEORGIU Marilena (PhD), Adjunct Assistant Professor in Spatial Planning at the University of Thessaly (DPRD – UTH) - Expert in tourism planning and management of natural and cultural heritage

FARASLIS Ioannis (PhD), Laboratory Assistant & Researcher at the University of Thessaly (DPRD – UTH) - Expert in environmental management and GIS

VASSILOPOULOU Vassiliki (PhD), Research Director at the Hellenic Centre for Marine Research (HCMR) – Expert in Marine Biology and Fisheries

PANAYIOTIDIS Panayiotis (PhD), Research Director at the Hellenic Centre for Marine Research (HCMR) - Expert in Marine Environment and Pollution

ANAGNOSTOU Christos (PhD), ex. Researcher Director at the Hellenic Centre for Marine Research (HCMR) - Expert in Marine Geology and Oceanography

Additional / Assisting Staff:

KRINAKIS Stavros (MSc), Research Associate at the University of Thessaly (DPRD – UTH), Spatial Planner – MSc in Sociology and Demography

CHARALAMPIDOU Vassiliki, Undergraduate Student at the DPRD UTH – Assisting Staff / Secretariat

The core team will work in close co-operation with PAP/RAC NFP for Greece for policy guidance aiming at ensuring that the deliverables will be of assistance to end users. There will be also co-operation with some Directorates of the MEECC (Spatial planning, Environment, Water) to have access to relevant information and ensure feasibility of proposals and consistency of policies.

Representatives of the Regional Authority of the Ionian Islands will co-operate for the case study, in order to check if the methodological tools are operational in real terms, as well as if the proposed co-operation scheme is operational and effective.



One PAP/RAC staff member will act as the co-ordinator of the project activities on behalf of UNEP/MAP. Other PAP/RAC staff members will contribute to the project as needed and appropriate. The possibility will be explored to involve other UNEP/MAP components as well (there are already contacts with SPA/RAC).

3.C THE CO-OPERATING PARTNERS

The partners that will be involved in the elaboration of the project are:

- the University of Thessaly, Greece: Leading Partner
- the Ministry of Productive Reconstruction, Environment and Energy (former MEECC): Assisting and end-user Partner
- the Regional Authority of the Ionian Islands in Western Greece: Partner serving the case study.

The project will be hosted by the GREEN_PLAN Research Laboratory (Laboratory of Geography and Environmental Planning) of the University of Thessaly, Greece (DPRD-UTH).

3.D MEETINGS AND ACTIVITIES FORESEEN

According to the contract commitments (Memorandum of Agreement), the meetings foreseen are the following:

1st meeting: 30 January 2015, Inception Meeting (held in Athens, Greece)

Participants: UNEP/MAP-PAP/RAC representative, MPREE (former MEECC) representatives, Ministry of Agricultural Development /Fisheries representative, Region of Ionian Islands representatives. Representative of the Association of Municipalities located in the Region of Ionian Islands (PED-IN).

Objective: Initiation of the project (kick-off meeting), discussion and finalization of the Inception Report (i.e. methodology of the project, organizational issues, role and kind of support provided by the PAP and other RACs, etc.), discussion on the case study details (which area in the Ionian Islands Region, which Governance stakeholders, etc.).

Expected Outcome: Establishment of the project network (among the Leader and the rest of the partners), draft of the Questionnaire Form (to be filled-in by each Partner and the CPs and returned before the end of March 2015).



2nd meeting: 12 – 14 May 2015 (to be held in Split, Croatia)

Participants: Members of the core team of the project are expected to be invited to the PAP/RAC NFPs meeting to deal, among other issues, with the ICZM Protocol (NFPs of 21 countries plus EU).

Objective: Presentation of the preliminary findings of the project, questionnaires for additional information, discussion and exchange of information with all participants.

Expected Outcome: feed-back from all PAP/RAC NFPs, for the finalization of the Intermediate Report and the rest of the deliverables.

3rd meeting: between 20 and 30 of November 2015 (to be held in Lefkada island, Greece)

Participants: UNEP/MAP-PAP/RAC representatives, representatives of MPREE and other competent Ministries or public authorities, Region of Ionian Islands representatives, 1st tier local authorities representatives, relevant NGOs, representatives of other MAP CAMPs, if possible.

Objective: Presentation of the project's findings and proposals, discussion with all partners.

Expected Outcome: Dissemination of the project's outcomes in order to facilitate the implementation of Marine Spatial Planning in all CPs; feed-back for the completion and submission of the Final Report.

Furthermore, on the occasion of the Meeting of the UNEP/MAP National Focal Points (scheduled to be held in Athens in April 2015), an extra side meeting will take place with the Director of PAP/RAC, Ms. Zeljka Skaricic, for further bilateral discussions and co-operation on the progress of the project.

The core team plans also some additional meetings with the authorities of the Region of the Ionian Islands (partners of the project), as well as some local stakeholders, in order to facilitate the implementation of the project and test the governance schemes to be proposed. These meetings are initially foreseen as described below:

1st local meeting: end of March 2015 – beginning of April (to be held in Corfu)

Participants: Representatives of the Region of Ionian Islands, the Regional Association Municipalities (1st tier Local authorities), local agencies, major associations, NGOs and other local or regional stakeholders.

Objective: Discussion and exchange of information, data and ideas among the partners and the local stakeholders on main ICZM and MSP issues, use of questionnaires.



Expected Outcome: Proposals for an effective and efficient public participation scheme at regional and local levels (important governance issues).

2nd local meeting: June 2015 (to be held in Zante)

Participants: Representatives of the Region of Ionian Islands, the Regional Association Municipalities (1st tier Local authorities), local agencies, NGOs and other local stakeholders.

Objective: Discussion and exchange of experience and know-how among the partners and the local stakeholders on MSP issues; testing of the governance scheme.

Expected Outcome: Proposals for an effective and efficient public participation scheme at local level.

3rd local meeting: July 2015 (to be held in Ithaca)

Participants: Representatives of the Region of Ionian Islands, the Regional Association Municipalities (1st tier Local authorities), local agencies, NGOs and other local stakeholders.

Objective: Discussion and exchange of experience and know-how among the partners and the local stakeholders on MSP issues; testing of the governance scheme.

Expected Outcome: Proposals for an effective and efficient public participation scheme at local level, especially at the scale of small islands.

Further to the Regional/Local Authorities and stakeholders and the PAP-CAMP NFPs, there will be also contacts and co-operation with the SPA/RAC and its NFPs, including on the occasion of the SPA FPs meeting (May 2015), so that the needs for marine ecosystems protection and marine ecosystems services preservation will be duly taken into account by the project.

Finally, on the occasion of the Congress entitled: Spatial Planning and Regional Development IV, organized by the hosting University of the project (University of Thessaly), to be held in September 24-27, 2015 in Volos, Greece, the project team will organize a special session (entitled *Marine Spatial Planning in Europe and the Mediterranean*) for the presentation of the project and the exchange of knowledge among experts of the same field. There will be an effort to organize a joint round table event with the partners of similar projects (e.g. ANDRIPLAN).



4. METHODOLOGIES AND TOOLS

Selection of the methodological approach and identification/delimitation of the study area in the Ionian Islands Region are among the essential goals of the inception report. This section provides key elements that need to be considered towards this direction.

4.A COMPLETING THE KNOWLEDGE BASE AND FRAMEWORK: METHODOLOGIES FOR LEGAL, INSTITUTIONAL AND SCIENTIFIC ASPECTS

In January 2008, 14 Mediterranean Countries signed the Protocol on Integrated Coastal Zone Management in the Mediterranean (UNEP/MAP/PAP, 2008), in the framework of the Barcelona Convention. To date, nine countries and the EU have ratified the Protocol; consequently, on 24th of March 2011, the Protocol entered into force, becoming a binding document. In implementing the Protocol, the Parties shall be guided by general principles of integrated coastal zone management, which lay on the application of an ecosystem approach.

Indeed, in recent years an ecosystem-based management (EBM) has been embodied in a broad range of environmental planning and management activities, including integrated coastal and oceans management, marine spatial planning (MSP), and strategic and regional environmental assessments. UNESCO-IOC (Ehler & Douvère, 2009) defines EBM as “*an integrated approach to management that considers the entire ecosystem, including humans*”. The goal of EBM to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the goods and services humans want and need. EBM emphasizes on the protection of ecosystem structure, functioning and key processes taking into account the interconnectedness within (e.g. interactions between target and non-target species) and among (e.g. land-sea interaction) the involved systems by integrating ecological, social, economic, and institutional perspectives; indeed, EBM is a place-based process focusing on specific ecosystems and human activities that may affect them (Ehler & Douvère, 2009).

The links between the principles of the ecosystem approach and the MSP key principles are presented in the Figure 1.

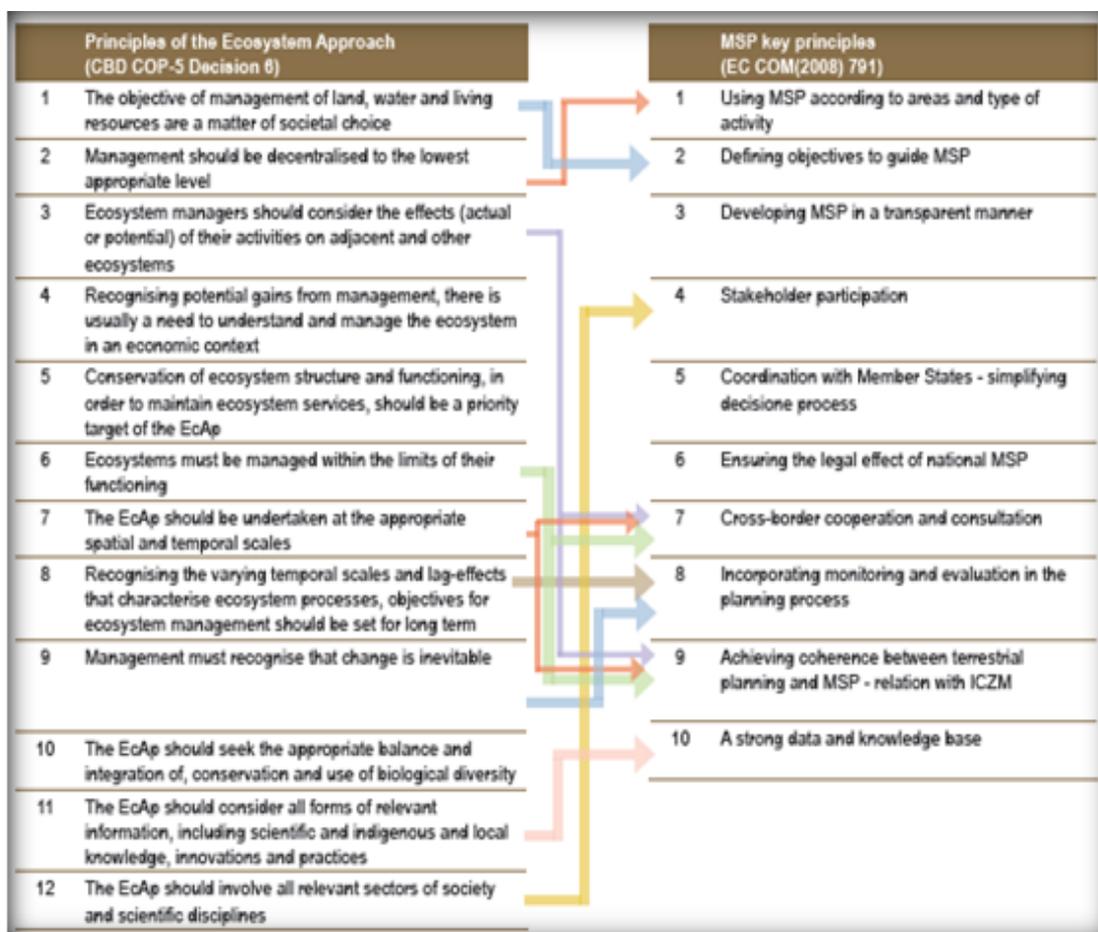


Figure 1: The links between the Principles of the Ecosystem Approach and Marine Spatial Planning
Source: adapted from Ramieri et al., 2014

Marine Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM) provide the framework for integrated management of human activities at sea required under EBM, and are in line with the EU Marine Strategy Framework Directive (MSFD) goals aiming to ensure that the collective pressure of human activities is kept within levels compatible with the achievement of good environmental status (GES). The EC COM(2008) 791 aims to facilitate the development of Maritime Spatial Planning (MSP) by Member States and encourage its implementation at national and EU level by setting out 10 key principles for MSP seeking to encourage the development of a common approach among Member States. These principles are closely linked to the ecological objectives of the Ecosystem Approach (EcAp) defined by UNEP/MAP.

A structured step-by-step approach is usually adopted to develop marine spatial plans described within several efforts, such as the PlanCoast (Integrated) MSP Framework (PlanCoast Handbook, 2008), the IOC-UNESCO Framework (Ehler & Douvère, 2009), the 12-



stage process on how a marine plan is made in England (<https://www.gov.uk/marine-plans-development>), and the MESMA Framework (Stelzenmüller *et al.*, 2012). These frameworks aim to enable decision-makers to map gaps, recognize relevant challenges, and contribute to strategic thinking that will be required in order to face these challenges. They should be applicable to areas of different spatial scale, reflecting the underlying natural (ecological processes and functions are scale dependent), and socio-economic factors (considering stakeholder interests), and with different levels of maturity of spatial management plans. Additionally, the temporal scale is an important factor influencing the assessment outputs, as it is relevant for the detection of response.

The study of the existing conditions with a forward looking dimension leads to the definition of clear management objectives that should guide the general vision at national and cross-border level; high-level policy goals must be translated into operational objectives before specific targets, limits and measures can be elaborated (Katsanevakis *et al.*, 2011). Operational objectives are defined as those for which operational, quantifiable targets can be set such that management measures can be targeted and performance can be evaluated, and are called SMART (Specific, Measureable, Achievable, Realistic, Time-bound) (Pomeroy *et al.*, 2005).

In general, MSP frameworks comprise the definition of key desired outcomes, identification of management objectives, performance indicators and thresholds, monitoring and risk analysis, assessment of findings in relation to objectives, and evaluation of current management and recommendations for adaptation. An example from the application of an MSP framework was the effort referring to the MESMA framework (Figure 2) which was applied in a case study of the Ionian Sea (Vassilopoulou *et al.*, 2011).

Furthermore, the PEGASO experience (2014) as regards the Spatial Data Infrastructure (SDI) will be assessed and used as appropriate.

All the above will constitute the platform of the methodological approach that will be adopted for the realization of the project's tasks. A case study will be carried out in the Ionian Islands, in close co-operation with the related Regional Authority, to test the methodological tools and governance schemes that will be proposed.

The documentation that will be used will be based on:

- Specific questionnaires to be filled-in by PAP/RAC NFPs, as well as by all competent and involved authorities in the Region serving as partners for the case study (the Ionian Sea). There will be additional interviews with some of these latter;
- Selected scientific studies for the protection and management of coastal and marine areas as well as best practices from all over the world; and

- CPs will be invited to provide input to the project and share their experience, in particular through the above-mentioned questionnaires and possibly through attendance of major contributors in some of the meetings.

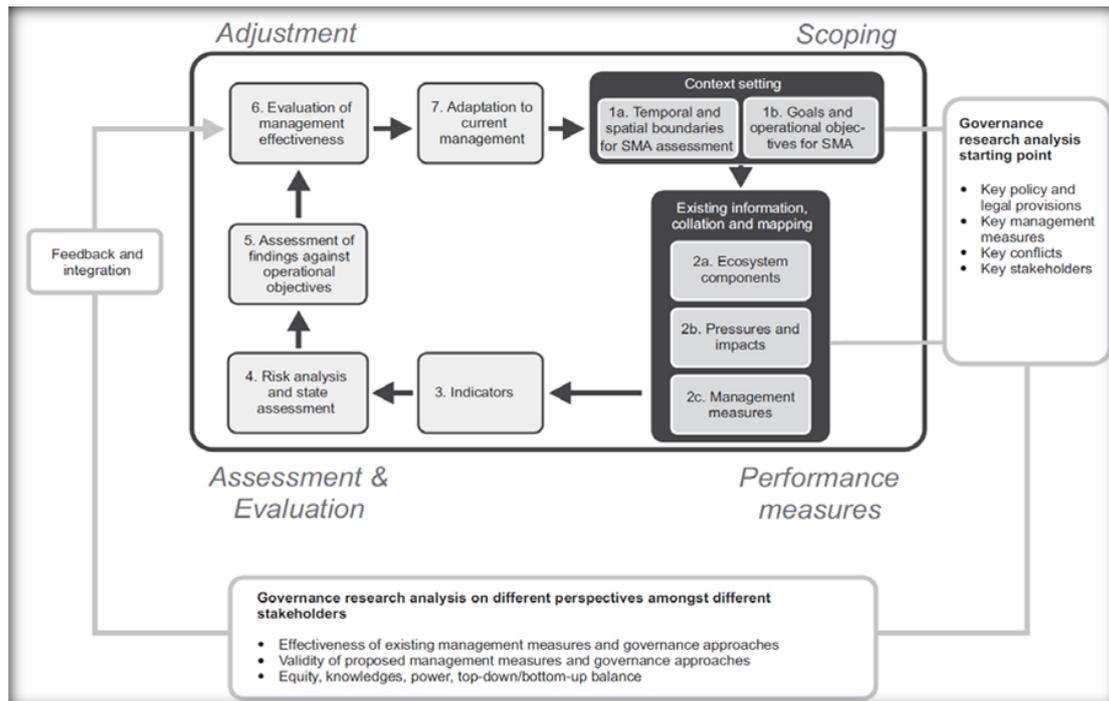


Figure 2: The MESMA framework for monitoring and evaluation of spatially managed areas

Source: Stelzenmüller *et al.*, 2012

Following the analysis of the existing conditions in the case study area that will be selected, emphasis will be primarily given to the examination of the topics/sectors appearing below:

- Sea (and land) uses and activities taking place in the coastal/marine areas (tourism, navigation, fisheries, aquaculture, wind farms etc.);
- Mineral and oil resources (hydro-carbons) that exist in the sea subsoil, in terms of their exploration and exploitation;
- Marine environment, in terms of natural ecosystems and marine protected areas as well as marine pollution matters and need to adapt to climate change. When possible, EcAp indicators will be given priority;
- Underwater cultural heritage (antiquities, ship wrecks, etc.), which are usually discovered and located in coastal and territorial waters and have to be properly protected and managed;



- A key methodological element during the elaboration of the project, but also for the use of its outcomes will be the establishment of a network around the Mediterranean. In this network, PAP/RAC NFPs and competent bodies will be invited to participate in order to facilitate the exchange of valuable international experience and know-how.

4.B CORE INDICATORS PER USE

Operational objectives are described in more detail by related attributes and criteria. To measure the status of these attributes and criteria a set of indicators – i.e. measurements that should quantify and simplify information related to trends that cannot easily be observed - are required. Indicators together with carefully chosen thresholds can be used to define both performance measures to assess the achievement of management objectives, as well as decision rules for adaptive management strategies to respond to impacts (see Sainsbury et al., 2000; Fulton et al., 2005). Moreover, indicators could also reflect aspects of concern to stakeholders and their meaning should be understood by as wide a range of stakeholders as possible (Douvere & Ehler, 2010).

Practical tools facilitating the implementation and assessment of EBM in marine ecosystems are the advanced Organization for Economic Co-operation and Development's (OECD), Pressure - State - Response (PSR) framework (OECD, 1993), and the Drivers – Pressures – State – Impact - Response (DPSIR) adopted by the European Environment Agency in 1995 (EEA, 1995). According to these frameworks socio-economic developments exert pressure on the environment and, as a consequence, its state changes, leading to impacts on human health, ecosystems and materials that may elicit a societal response. The selection of suitable indicators reflecting the above components provides the basis for such an assessment. Indicators should be viable from both a scientific and a management perspective (Rice and Rochet, 2005; Rochet and Rice, 2005; Diedrich et al., 2010). Scientifically they should be easy to measure, interpretable, grounded on scientific theory, sensitive and response specific (in relation to human activities). From a management perspective they should be cost effective, concrete, relevant to the objectives, linked to the outcome being monitored, developed inclusively, part of the management process (Diedrich et al., 2010). Another important process is the definition of thresholds or reference points against which the status of the indicators can be assessed, however, in some cases where thresholds cannot be established the assessment of trends may be sufficient (Tallis et al., 2010).

The main advantages of using indicators in environmental assessments are:

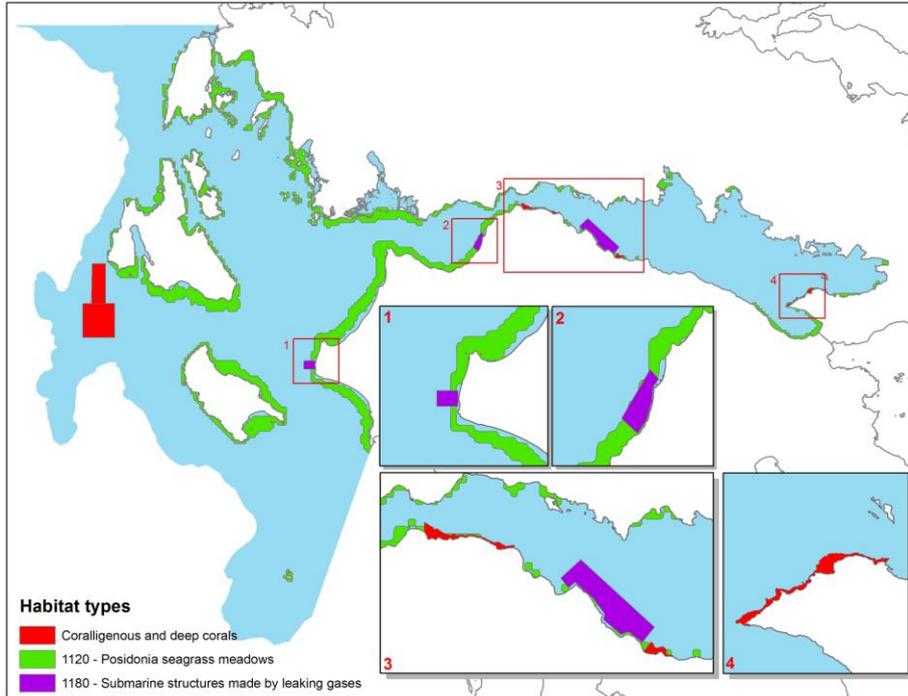


- a) the information they can give to decision makers, to end-users and to the general public;
- b) the possibility of a comparison in terms of time and space; and
- c) the facilitation of the process for collecting information.

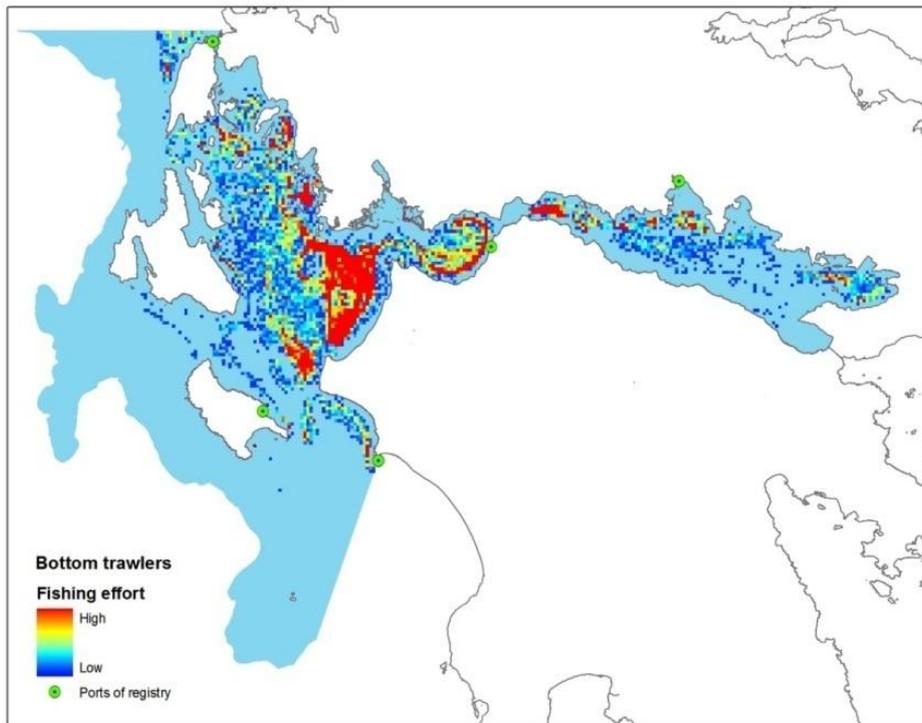
Recently, the EU Commission Decision 2010/477/EU on criteria and methodological standards on good environmental status of marine waters under the MSFD were used as the basis for developing the Mediterranean Ecological Objectives and indicators under the UNEP/MAP EcAp. The 11 adopted objectives within EcAp are coherent with the EU MSFD state and pressure descriptors and have been complemented with relevant indicators.

Two examples, one of a so-called state indicator and another of a pressure indicator that were used for spatial analysis purposes, being visualized using GIS techniques, and referring respectively to the distribution of certain important habitats and to the fishing effort exerted from trawlers in the Greek MESMA case study area, are provided below (Maps 6a and 6b).

In the frame of the project, once the operational objectives of the case study will be determined through effective interaction with key stakeholders, identification of suitable indicators, reflecting a wide range of ecosystem processes, relevant functional groups and structures, as well as pressures exerted on them, considering those proposed by the EcAp process in the Mediterranean in conjunction with similar ones under the MSFD, will be made following a structured and objective process (Fulton et al., 2005).



Map 6: a. Distribution of selected habitats in the Greek MESMA case study area



Map 6. b. Distribution of fishing effort from bottom trawlers

Source: Vassilopoulou et al., 2011



4.C VULNERABILITY TOOLS

Marine ecosystems may be affected by several human threats exerted by the variety of human activities and uses that take place within marine regions. The process of threat assessment and analysis constitutes a critical procedure towards the estimation of ecosystems' responses in human changes and decisions. The aforementioned process results to critical indications about the vulnerability of marine ecosystems to anthropogenic threats. According to Zacharias and Gregr (2005), vulnerability can be described as *“the probability that a feature will be exposed to a stressor to which it is sensitive”*. Hence, it can be used as an indicative measure for the processes of evaluation and ranking during threat assessment analysis. From another point of view, the impact of a threat on a specific ecosystem (e.g. a fish habitat) can be estimated by the ecosystems' vulnerability to that threat. The overarching goal behind vulnerability analysis aims to contribute to a quantitative approach that is based on representative factors for the description of different types of anthropogenic threats (see Halpern et al., 2007).

Several methodologies and approaches have been developed in order to support threat analysis and the identification of the most vulnerable marine regions. According to Halpern et al. (2007), threat analysis requires an integrated approach which contains methods and techniques to quantify the vulnerability of each component. These factors are related with both spatial and temporal characteristics while variables which are able to measure ecosystem responses (e.g. resilience) to human threats are also considered for the analysis. Additionally, the quantification of certainty accomplishes the analysis of threats in the referred vulnerability factors. This approach is based on the quantification of the representative factors using a common numerical scale that also allows the comparison among them. Moreover, the lack of empirical spatial data increases the need to use expert judgment in combination with literature-based surveys for the evaluation of main threats in order to serve as the base framework for the process of threat assessment. Following this approach, the most threatened marine ecosystems can be highlighted while critical indications about the pressures related to the human activities that take place within specific marine regions can also be provided (see e.g. Kokkali et al., 2015).

The approach described by Halpern et al. (2007) constitutes a first step towards the identification of human threats related to specific ecosystems within a specific marine area. Despite the fact that this methodology is able to serve as a significant ranking tool for threat assessment process, it cannot be used in order to represent human impacts in a spatially aware manner. Hence, a next step consists of the computation of impacts produced by each human activity to each ecosystem component. This approach allows the quantification of the impact in a spatial explicit way. A series of studies including Halpern et al. (2008), Korpinen et al. (2012), Andersen et al. (2013) and Micheli et al. (2013) follow this approach



in order to calculate the cumulative impacts on ecosystem components. The translation of human pressures into potential environmental impacts and their expression as cumulative scores in a spatial-based approach allows the identification of “hot spots” where an examined marine region is most threatened. The implementation of this procedure requires three different units including anthropogenic pressures, ecosystem components and weighting coefficients. The process of weighting can be based on expert judgment (see e.g. Korpinen et al. 2012) while anthropogenic pressures and ecosystems can be described through their spatial dimension.

The assessment of ecosystem components’ sensitivity is also described in another approach implemented by Stelzenmüller et al. (2010). This study examines the vulnerability of specific fish species while the sensitivity of each variable (fish species) is expressed as a sensitivity index based on several factors involving among them variables that are also related to geographical distribution and threat status. An interesting point of this approach is referred to the involvement of economic issues in the analysis. More specifically, the importance of fisheries is expressed in terms of economic cost in this study while mapping procedure is based on both sensitivity index and the predictions of species distributions produced using kriging indicator.

Considering the aforementioned approaches, it becomes obvious that, in the most of the cases, the essential tools for the evaluation of vulnerability issues must be compatible with a spatial aware expression. Hence, the method followed by Halpern et al. (2008), Korpinen et al. (2012), Andersen et al. (2013) and Micheli et al. (2013) as well as the modeling approach including economic issues (Stelzenmüller et al. 2010) requires the use of geographic information systems (GIS) for the computation of spatial based factors and for the mapping of the outcomes where the level of sensitivity can be visualized. Another issue that is raised directly connected with the quality and accuracy of the available spatial data. A range of different criteria including the identification of data gaps, the suitability of the collecting methodology, the time period and the accuracy of data collection, and processes of data validation and validation checking etc. (Shucksmith & Kelly, 2014) must be considered for the implementation of the analysis. Hence, threat analysis is directly connected to the uncertainty of the available data. The understanding and quantification of uncertainty requires the combination of different sources including expert knowledge and data (see for example Pollino et al. 2006). The vulnerability of an ecosystem can be also ranked in combination with the uncertainties which are linked with the main threats (e.g. by the application of Bayesian Belief Networks- see for example (Stelzenmüller et al. 2011).

The implementation of the aforementioned approaches for the quantification of threats as well as for their spatial description can be applied using several available tools that are developed and reported in recent studies. More specifically, an extensive collection is cited in Stelzenmüller et al. (2013a, 2013b). Additionally, in the broader concept of ecosystem-

based management, related tools (www.ebmtools.org) can be used for the implementation of threat assessment analysis.

An example of threat assessment is provided in Table 3 where case vulnerability scores of high and low priority ecosystem components are calculated for the marine region of the National Park of Zakynthos in order to rank the threats/pressures produced by existing human activities.

Table 3: Vulnerability scores of high and low priority ecosystem components for the marine region of the National Park of Zakynthos

Priority status	Ecosystem component	Activity	Pressure	Vulnerability Score	
High	<i>Caretta caretta</i>	Small scale fishing	Accidental entanglement	2.1	
	<i>Caretta caretta</i>	Boating	Boat strike	2.1	
	<i>Caretta caretta</i>	Tourism (use by visitors)	Physical damage-Disturbance	2.5	
	<i>Caretta caretta</i>	Boating	Contamination	1.9	
	<i>Monachus monachus</i>	Small scale fishing	Prey depletion	1.9	
	<i>Monachus monachus</i>	Small scale fishing	Direct killing	2.4	
	<i>Monachus monachus</i>	Shoreline development	Habitat loss/degradation	1.8	
	<i>Phalacrocorax aristotelis</i>	Small scale fishing	Accidental by- catch	1.6	
	<i>Posidonia oceanica</i>	Small scale fishing	Extraction	1.9	
	<i>Posidonia oceanica</i>	Boating	Extraction	1.8	
	<i>Posidonia oceanica</i>	Coastal, riverine and atmospheric inputs from land	Contamination	2.1	
	Low	<i>Delphinus delphis</i>	Small scale fishing	Accidental entanglement	1.5
		<i>Delphinus delphis</i>	Small scale fishing	Prey depletion	1.7
<i>Delphinus delphis</i>		Small scale fishing	Direct killing	1.8	
<i>Tursiops truncatus</i>		Small scale fishing	Accidental entanglement	2.1	
<i>Tursiops truncatus</i>		Small scale fishing	Prey depletion	1.7	
<i>Tursiops truncatus</i>		Small scale fishing	Direct killing	1.8	
<i>Calonectris diomedea</i>		Small scale fishing	Accidental by- catch	2.3	

Source: adapted from Kokkali et al. 2015



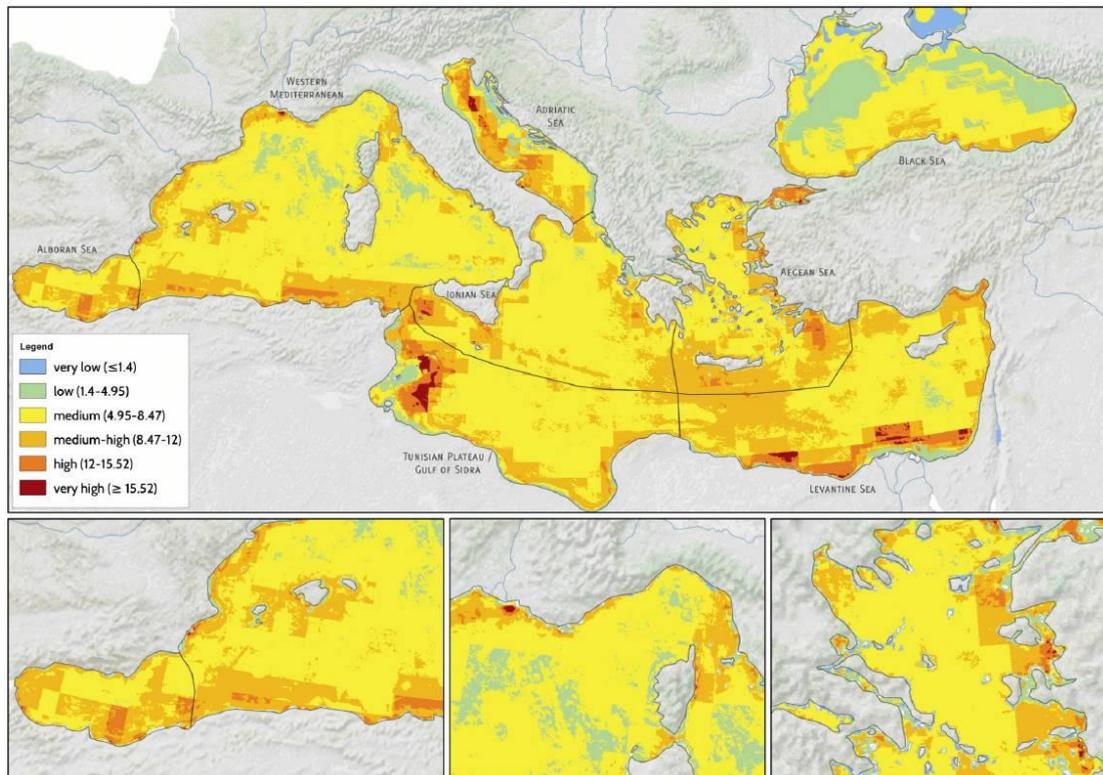
4.D INTEGRATED REGIONAL ASSESSMENT AND CUMULATIVE IMPACT MAPPING TOOLS

An ecosystem-based approach for marine spatial planning and management needs to involve cumulative and interactive impacts of several human activities and the related pressures (Evans and Klinger, 2008). Cumulative impacts can be described as the impact combination produced by multiple pressures over space and time (McDonald et al., 2007). The modeling of cumulative impacts as additive values (Halpern et al. 2008; Korpinen et al. 2012; Andersen et al. 2013; Micheli et al. 2013) is based on the assumption that human activities act independently. Hence, ecosystems' sensitivity can be estimated as a cumulative score. Additionally, from another point of view, sensitivity analysis can be also based on geospatial modeling procedure that resulted in a number of alternative risk scenarios (Stelzenmüller et al. 2011).

The analysis of cumulative impacts and the related mapping procedure require the use of analytical tools that allows the implementation of the computations as well as the visualization of the results. The spatial explicit approach for the computation of impacts requires also the normalization and harmonization of the available spatial data. For the computation of impacts (or cumulative impacts) expressed in a spatial manner, the harmonization of the available data is based on grid approach in order to be sufficient for the analysis (see for example Halpern et al. 2008; Korpinen et al. 2012; Micheli et al. 2013). The geospatial data (e.g. specific habitats and their main threat pressures) is transformed into values of absence/presence or intensities which are expressed in each cell of the used grid. The definition of the grid cell size can be defined by the maximum resolution of the available data (see Stelzenmüller et al. 2011). The available tools (see Stelzenmüller et al. 2013) are mainly implemented (or adapted) in order to be compatible with geographic information systems (GIS).

The case study presented by Micheli et al. (2013) constitutes a representative example of this approach. More specifically, the aim of this study is to calculate cumulative human impacts on the Mediterranean and Black Sea Marine Ecosystems considering 22 different types of anthropogenic pressures and 17 marine ecosystem components. The quantification and mapping of cumulative impacts' scores indicate the most threatened marine regions within the examined marine region (Map 7).

Similar work has been carried out in the context of PEGASO (2014) for the Mediterranean and the Black Sea and will be taken into consideration.



Map 7: Cumulative impacts in the marine regions of Mediterranean and Black Sea

Source: adapted from Micheli et al. 2013

4.E COMPATIBILITY TOOLS FOR MAIN SEA USES

In the past, human activities taking place in the sea were very limited and entirely related to the water element (boating, fishing, etc.). However, today's technological evolution (providing technical solutions for creating infrastructure in the sea) made easier the exploitation of the multidimensional nature of marine space.

These past years, new horizons opened regarding the productive potentials of the marine environment, resulting in the essential increase of resource exploitation and sea-uses taking place at all sea levels. The sea surface, the water column, the seabed, even the subsoil of the seabed are discrete parts of the sea, in which human activities take place, sometimes trespassing/"occupying" more than one level, as in the case of the extraction of minerals from the subsoil of the sea, using also partly the water column, part of which might be also used by some forms of fisheries.



Given this variety and complexity of different human activities taking place within the marine space, interactions (synergies or conflicts) among sea uses are inevitable. Generally, four types of interactions are identified among human activities in the sea:

- (a) activities competing for the same space,
- (b) activities competing for the same resource,
- (c) conflicting and incompatible uses in the same area,
- (d) synergetic interaction among uses in the same area.

The analysis of compatibility among human activities and uses, as well as the implementation of the related tools, constitutes a critical process in the procedures of prioritization and decision-making which are essential parts of an effective MSP.

To this end, the main objective of the project will be the exhaustive listing of all kinds of uses that could be developed in the marine space (existing sea-uses and future ones, likely to be developed – see Table 4).

Table 4: Indicative list of sea uses

Offshore Wind Farms	Oil and gas mining / extraction
Marine Protected Areas	Dumping and dredging material
Fisheries	Aquaculture
The sea as public good	Coastal Services Centres
Cables	Nature Conservation
Tourism	Coastal Protection
Shipping and Shipping Routes	Military Use
Harbours and Ports	Shipwrecks
Agriculture run-off	Underwater Antiquities
Sand and gravel extraction	Underwater pipelines

Source: processed by the core project team

In parallel, in an effort to better evaluate the nature and the compatibility of activities in the marine environment, sea-uses will be codified and classified, according to the following parameters:

- location at the sea level (i.e. the surface, the water column, the seabed, the subsoil)

- stability or mobility features [e.g. permanent structures (aquacultures) vs. passing ships]

Other classifications of uses or activities that are also necessary for evaluating compatibility (see Table 5) are related to:

- the intensity/concentration of the activity/sea-use (or size of the infrastructure);
- the economic importance of the activity/sea-use or the infrastructure on the local or national economy;
- the sensitivity of the marine environment (presence of Protected Area, underwater antiquities, degraded environment, etc).

Table 5: Estimates of compatibility of individual forms of use on coasts and seas

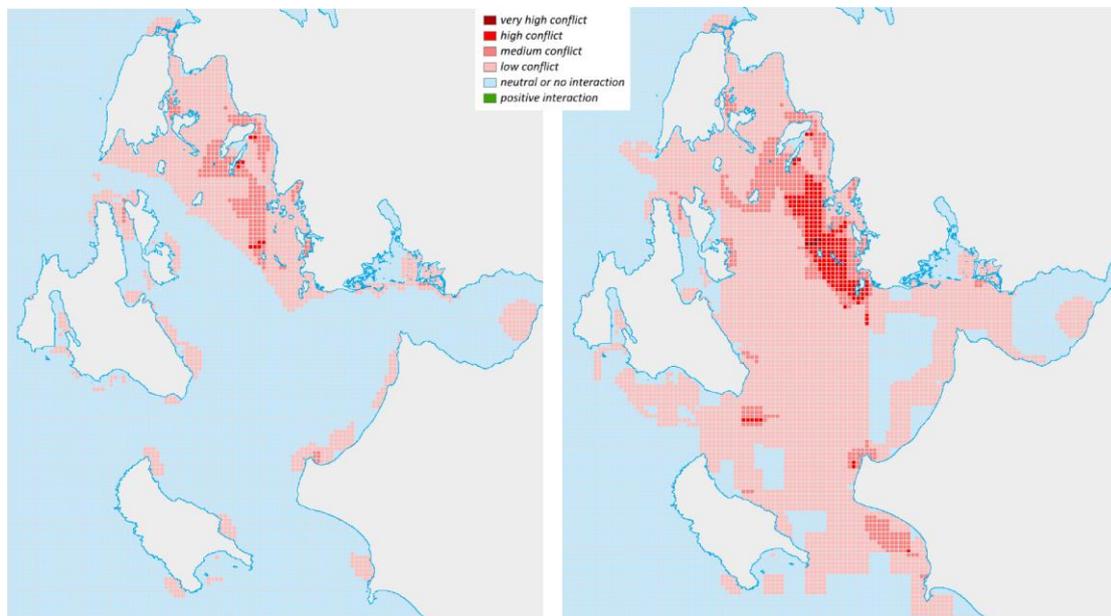
	Off-shore wind Farms	Marine Protected Areas	Fisheries	The sea as public good	Cables	Tourism	Shipping and Shipping Routes	Harbours and Ports	Agriculture run-off	Sand and gravel excavation	Oil and gas exploration	Dumping and dredging material	Mariculture	Coastal Services Centres	Nature Conservation	Π Coastal Protection	Military Use
Off-shore wind Farms																	
Marine Protected Areas																	
Fisheries																	
The sea as public good																	
Cables																	
Tourism																	
Shipping and Shipping Routes																	
Harbours and Ports																	
Agriculture run-off																	
Sand and gravel excavation																	
Oil and gas exploration																	
Dumping and dredging material																	
Mariculture																	
Coastal Services Centres																	
Nature Conservation																	
Coastal Protection																	
Military Use																	

■ Incompatible uses
 ■ Conditionally compatible
 Compatible

Source: Gee et al., 2006

In general, the project will build upon previous projects and existing bibliography, in an effort to synthesize knowledge, adapting it to the case of the Mediterranean Sea (example of previous attempts and matrices, are shown below). Especially, the identification of spatial interactions between human uses can also be based on spatial explicit approaches (compatibility matrices) that allows their categorization into synergies, conflicts or neutral interactions and the quantification of the conflicting levels in relation to predefined criteria (see e.g. Gramolini et al. 2013, Krassanakis et al. 2015). Additionally, the interactions among human activities can also be expressed in social and/or economic terms. Hence, the analysis of overlapping uses is to be based on several types of aspects.

The identification of spatial interactions among existing and future human activities and uses is presented in a case study implemented in a marine region of Central Western Greece (Krassanakis et al. 2015). The analysis of spatial conflicting interactions among human activities is made by considering specific factors, allowing the computation of the corresponding conflicting scores as well as their visualization in the examined marine area (Map 8).



Map 8: Spatial interactions among existing and future uses within a marine region of Central Western Greece

Source: adapted from Krassanakis et al. 2015



4.F GOVERNANCE TOOLS

Governance constitutes a weak point in planning and implementation of policies in most of the countries. Its notion has been very much debated over the last years and perceived in many different ways, fact that explains the diversity of its definitions.

According to CEMAT glossary “Territorial governance is a global concept which characterizes the way how spatially-relevant policies, considered together, are applied. Territorial governance is assessed against its contribution to the achievement of the objectives of spatial development policies. It is the result of multi-level and cross-sectorial relationships in the field of public policies. It refers to horizontal and vertical cooperation in the shaping and implementation of these policies. In this respect, the principles of subsidiarity and reciprocity advocated in the Guiding Principles are of particular relevance”.

IOC is using a different definition: “Governance is the process through which diverse elements of a society wield power and authority and thereby influence and enact policies and decisions concerning public life and economic and social development. Governments as well as the private sector and civil society carry out governance. However, governance is not the same as government”.

Beyond definitions, governance implies in real terms: legal clarity on competences, institutional schemes for co-operation/co-ordination, multi-level decision-making processes, participatory/consultation schemes per planning and management stage (e.g., committees, fora, e-governance), bridging of scientists/decision-makers/citizens, enabling conditions (e.g., capacity building), access to knowledge, adaptive management, monitoring capacities (e.g., coastguard, research vessels), etc.

A special characteristic of the MSP compared to land planning is the fact that the sea is a public good: under the jurisdiction and the responsibility of the competent national authorities, with a right for access and use by the citizens – unless if justified restrictions are in place.

Several projects carried out before the current one, many of them financed by the European Union, have tackled the issue of governance. Most of them have put emphasis on the completion and accessibility of a solid knowledge (data) base, on theoretical schemes for decision making and on capacity building.

This project will touch on governance focusing mostly on competences and public participation aspects. The challenge is to apply some theoretical models in the real conditions of the regional and national stakeholders. The intention is to address in particular the following:



- Competences of the public authorities at local, regional and national levels: Who is competent in coastal and marine spatial planning? Are consultation bodies needed and in what composition? How can we better combine ICZM and MSP?
- Participation schemes and stakeholders: Who should participate? Which is the role of citizens? How civil participation process could be done? How regional/local stakeholders could feel ownership and accept to be involved? What would the regional/local authorities need to play better their role during consultations?
- Access to information: How can it be accomplished? How can Information Communication Technologies (ICT) help to that direction?
- Modalities of the process: Public participation modalities may vary in relation to the territorial scope of plans, as well as to the administrative structure and degree of decentralization of the countries concerned. Are there good practices to share?
- Evaluation of the outcomes and follow-up of participation processes.

To gather information needed and interact with stakeholders from other authorities in the country, from the case study area but also from the other Mediterranean countries, the core team has foreseen:

- Questionnaires to different groups,
- Consultation meetings at the islands, and
- Discussions with the PAP/RAC and SPA/RAC NFPs on specific aspects of common interest.

International organisations like IOC are using indicators to evaluate MSP performance including governance aspects. Such indicators include:

- An appropriate legal authority and clear legal framework;
- Appropriate institutional arrangements;
- Clear geographical boundaries of the MSP plan or plans;
- A specified planning horizon for the plan, e.g., 10 years;
- A clear deadline for the completion of the plan;
- A specified time frame for reviewing the plan, e.g., every five years;
- Regulatory powers and instruments for managing development within the marine management area;
- Human, technical and financial resources to develop and implement the plan; and
- Procedures in place for monitoring, evaluating and adjusting the MSP plan.



This project will explore which indicators could be more appropriate for the Mediterranean conditions.

4.G INTERACTION (OF PLANNING AND BETWEEN SEA/LAND)

Marine Spatial Planning focuses on preparing spatial plans in marine waters by addressing land-sea interactions in a co-ordinated way with a view to ensuring their sustainable development. In recent years there is increasing and uncoordinated use of coastal and marine areas resulting respectively in multiple increasing pressures on coastal and marine resources. It is evident that sustainable use of resources will lead to sustainable growth of maritime and coastal economies by linking "Marine Spatial Planning" and "Integrated Coastal Zone Management" strategies; the challenge is to plan and manage inshore and offshore anthropogenic activities in a harmonized manner considering the functional integrity of the land-sea continuum.

To effectively tackle the above, development of a more comprehensive understanding of land-sea interactions should be pursued by adopting consistent approaches to mapping these interactions, exploring at the same time best practices in terms of terrestrial-marine governance. The typology of land-sea interaction developed, e.g. within ESPON could be used as a spatial tool for understanding these interactions and informing policy development and decision making at a range of different scales. Coupling MSP and ICZM frameworks will also contribute towards this direction. The project will consider such aspects and will aim to provide relevant recommendations as a viable step towards implementing an ecosystem-based management in the marine and coastal environment.

Emphasis will be put on the interaction between the sea and the land, in terms of understanding:

- the natural dynamic mechanisms of interaction, as well as the effects of climate change and other parameters on coastal and marine areas (sea level rise, coastal erosion, etc.) including on technical infrastructures (ports, aquaculture installations, etc.);
- the relationship (i.e. complementarities and conflicts) among different uses and human activities in the coastal and marine areas, affecting economic development and the ecosystems.

The study of all the above parameters will allow the understanding of the nature and the threats and/or challenges (climate change, pollution, etc.) that the Mediterranean faces and, therefore, the needs that are to be addressed and the priorities to be set out



for the implementation of integrated Marine Spatial Planning (MSP) in the Mediterranean Basin.

4.H 3D MAPPING

Methodology

Due to the nature of MSP, the project will necessarily focus on the examination of the state of the art (GIS, tools and methods, planning authorities and schemes), in an effort to track the appropriate ones for the representation of the multidimensional geographical information related to the sea/marine space (2dGIS and 3dGIS).

The project will build upon previous projects carried out in the Mediterranean (e.g., PEGASO, SHAPE) and will try to apply some of the tools developed or used by them (e.g. cumulative impact mapping). When formulating proposals, it will also take into account the Ecosystems-based Approach and primarily build upon the EcAp indicators.

Sea-use representation and mapping

As described in previous sections of the Inception Report, sea-uses (to be represented in maps) will be codified and classified, according to the following parameters:

- location at the sea level (i.e. the surface, the water column, the seabed, the subsoil)
- stability or mobility features [e.g. permanent structures (aquaculture) vs. passing ships]

Other classification of the dataset (to be represented in maps of Marine Spatial Planning), should also be based on the following categories:

- a. Geophysical data
 - Bathometric, terrain data
 - International, National designations
 - Geology
 - Sea streams, currents
 - Wind power, etc.
- b. Marine Natural Environment
 - Surface and waste water management
 - Climate Change (sea level rise, coastal erosion, etc.)
 - Biodiversity



- c. Zones of economic production and development
 - Mariculture /Aquacultures
 - Offshore Wind Farms
 - Mineral and Oil resources in the sea subsoil

- d. Linear structures and uses (interconnections)
 - Sea transport lines
 - Underwater cables and pipelines

- e. Natural and Cultural Protected Areas
 - Marine Protected Areas (MPA)
 - Specially Protected Areas of Mediterranean Importance (SPAMI)
 - Marine Natura 2000 areas
 - Ramsar sites
 - Underwater antiquities

- f. Environmentally degraded areas
 - Oil spills
 - Waste disposal

- g. Special Uses / Interdicted Areas
 - Military areas
 - International Waters
 - Whirlpools

Representation and mapping tools – 3D Mapping

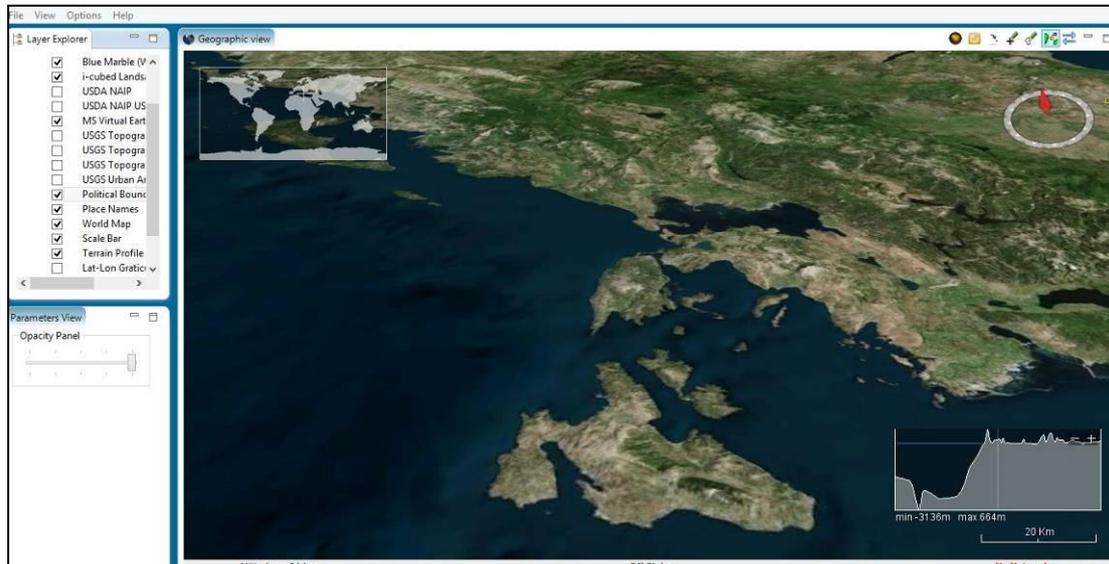
The role of 2D-GIS mapping and especially of 3D-GIS mapping in representing the multidimensional geographic information will be analyzed, given the great advantages that interactive visualization procedure offers. In this framework, a series of GIS-Remote Sensing software packages will be evaluated - both commercial and open source ones, such as those built from previous related projects:

- QGIS;
- Geo-Seas-3D Viewer (Pan-European infrastructure for the management of marine and ocean geological and geophysical data). This software has been developed in the EU FP7 Geo-Seas project (Map 9).

These tools will hopefully allow the project to develop a 3D-GIS participatory model for assisting Marine Spatial Planning and management based on the Ecosystem-Based Management (EBM) Approach. Comprising 3D interactive maps and using virtualized scenarios in MSP procedures is expected to serve:

- the experts to understand the complexity and the interaction of sea-uses in the marine environment (in view of the decision-making process);

- the public to understand Marine Spatial Plans and proposals when opened to participation procedures.



Map 9: Geo-Seas-3D Viewer depicting Ionian Islands

Source: processed by the core project team

Availability and accessibility of data (data needed and/or missing)

Following the overall spatial planning methodology and process, the elaboration of a marine spatial plan also depends on the documentation, the credibility and accessibility of data (statistical, environmental, spatial, etc.). These data are necessary not only for the evaluation of parameters and indicators (in view of eventual policy options), but also for the representation of valuable geographical information, which is indispensable for the production of maps.

Therefore, the project will try to specify the needs in data, focusing not only on the existing data, but also on the unavailable ones (e.g. wind power, sea streams/currents, oceanographic characteristics, etc.), in order to motivate and help the competent national (and/or European) bodies to overcome this deficiency.

All geographical data must follow common standards for metadata, common vocabulary, data transport formats, quality control methods and flags, and access. To this purpose, existing projects or directives should be advised, such as:

- Infrastructure for Spatial Information in the European Community: INSPIRE Directive



- European Marine Observation and Data Network (EMODnet Bathymetry portal) developing by a European partnership: http://www.emodnet-bathymetry.eu/content/content.asp?menu=0020000_000000
- Marine Regions. It is managed by the Flanders Marine Institute (<http://www.marineregions.org/index.php>)

Case Study

Mapping methodologies and tools proposed by the project will be tested in the Region of Ionian Islands, which is selected as the case study area. 3D interactive maps and tools will be especially tested in public participation procedures.

In particular, a pilot “it” will be created - 3D interactive maps in a pilot site and it will be tried to deal with marine issues involved all the concerned stakeholders. In the pilot site the proposed methodology will be applied in two main themes:

- Selection of (statistical and *in situ*) data and information, in collaboration with the local authorities – actors; and
- Use of 2D or 3D interactive maps during public participation procedures, in order to demonstrate the existing situation and the proposed plans.

Ultimate purpose of this test will be the formulation of proposals aiming at strengthening public awareness and consensus in the decision making, in terms of Marine Spatial Planning.

5. WORK PLAN – TIMETABLE

5.A PHASES OF THE PROJECT

The project will be divided into three phases, corresponding to the three contractual benchmarks, namely, the three report submissions and their respective meetings, foreseen in the MoA.

1st PHASE (30 December 2014 – 30 January 2015)

The first phase begins at the starting date of the project (30 December 2015), after the signature of the MoA, and it ends after the realization of the 1st meeting (30 January 2015) and the submission of the deliverables (one week after the meeting).



Objectives at this phase will be the kick-off of the project, the finalization of the Inception Report (i.e. methodology of the project, organizational issues, role and kind of support provided by the PAP/RAC, etc.) and the discussion on the case study details. Expected outcomes at this first phase will be the establishment of a network (among the core team and the rest of the partners and major stakeholders), the first draft of the Questionnaire Form (to be filled-in by each Partner and as many CPs as possible (to be returned before the end of March 2015)).

2nd PHASE (1 February 2015 – 16 May 2015)

The second phase of the programme begins right after the end of the 1st phase and ends after the realization of the second official meeting (12-14 May 2015) and the submission of the deliverables (one week after the meeting).

Main objectives of this phase will be the compilation and assessment of existing tools for MSP, the adaptation and/or development of new ones, if needed for the Mediterranean, the contact of regional and local stakeholders at the case study area, the mapping of the problems and needs, the pilot use of some tools in the Ionian islands, and the preparation of initial draft recommendations for the CPs. A progress report (including draft questionnaire analysis) will be prepared that will take account of the discussions and exchange of information among NFPs of the CPs at the 2nd official meeting. It will also incorporate input from the co-operation with the partners from the Region of Ionian islands and the local stakeholders.

3rd PHASE (17 May 2015 – 30 November 2015)

The third and final phase of the programme begins right after the end of the 2nd phase and ends after the realization of the third official meeting (between 20 and 30 November 2015) and the submission of the deliverables (one month after the meeting).

The main objective of this phase will be to carry out additional pilot actions in the Ionian islands and to further elaborate appropriate tools and methodologies, including governance, for MSP. The outcomes and conclusions of this work will be presented for discussion during the Final Meeting with all partners and major stakeholders. Proposals from this meeting will be used in the Final Report to be submitted to PAP. Experience from this phase might complement the draft recommendations for the CPs. Actions for the dissemination of the project's findings and proposals will be foreseen to facilitate the implementation of Marine Spatial Planning in Greece but also in the other Mediterranean countries.

The initial time schedule of the project is included in Annex II.



5.B MAIN EXPECTED DELIVERABLES

The main expected deliverables per phase (as described above) will be the following:

Deliverables within one week after the 1st (kick-off) meeting (held in 30 January 2015):

- a) Final Inception Report and
- b) Minutes of the Inception Meeting

Deliverables within one week after the 2nd meeting (held in 12-14 May 2015):

- a) Draft Progress Report and
- b) Minutes of the Meeting

Deliverables within one month after the 3rd (final) (held between 20 and 30 Nov. 2015):

- a) Final Project Report and its deliverables (= tools, methodologies, recommendations).

6. FUNDING

6.A PROJECT'S BUDGET

PAP/RAC will allocate 50,000 € from its MTF budget for the implementation of the project, payable in following instalments:

1 st instalment: upon the submission and clearance by PAP/RAC of the Project Inception Report (January 2015)	30%
2 nd instalment: upon the submission and clearance by PAP/RAC of the Draft Project Report (May 2015)	50%
3 rd instalment: upon the submission and clearance by PAP/RAC of the Final Project Report (December 2015)	20%

Under the guidance and supervision of PAP/RAC, the DPRD-UTH will coordinate the implementation of the Project activities and will regularly report to PAP/RAC on the progress made.



The DPRD-UTH will ensure all necessary professional, logistic and administrative support needed for a smooth and timely implementation of the Project.

6.B FUNDING POSSIBILITIES FOR MSP IN THE MEDITERRANEAN

The project will examine the potential sources for financing the marine spatial plans, using funds beyond national resources. Such funds can derive, *intra alia*, from:

- the Mediterranean Trust Fund (to a limited extent for horizontal actions mainly);
- the European Union projects, initiatives and financial instruments, such as LIFE, the Adriatic-Ionian Strategy (macro-region), ex-DG MARE calls, SMAP (for coastal areas), INTERREG, Research FP8, etc.;
- the Global Environment Facility (GEF), for the southern Mediterranean countries;
- the French GEF;
- the World Bank funding programmes;
- the Union for the Mediterranean;
- others to be explored.



ANNEXES



ANNEX I: Welcome Message of the CAMP Italy project Co-ordinator

I would like to greet distinguish participants, guests and organizers of the inception meeting of the Greek Project on MSP, and to thank for kindly inviting me to give a message.

It is a great pleasure for me to give my welcome message to this important event for Greece and also for the Mediterranean CAMP/MSP Network as the CAMP Italy Project Coordinator.

It is of special importance to underline the ambitiousness of CAMP Italy Project, focusing on the importance of horizontal level activities in relation with other related Projects in the Mediterranean area, as other CAMPs and/or MSP Projects and referred to the crucial role of CAMP in the Barcelona Convention and in National strategies to implement coastal zone management planning as well as related issues, like the Marine Protected Areas, EcAp process or the Maritime Spatial Planning. In fact, it is important to pursue common goals as a cohesion element of harmonization and calibration.

This type of projects represents real and valuable solution. In this context, CAMP Italy denotes a tangible change for its complexity and richness on proposing new solutions and tools for the Mediterranean network of CAMP and ICZM/MSP Projects.

The importance of CAMP and ICZM/MSP projects is clear, since they are essential as a support to strengthen this policies at the national level as well as at the Mediterranean level to gain experience in integrated coastal zone management and maritime spatial planning, especially with regard in understanding and experimenting criticalities. There is a great interest in creating a Mediterranean network to learn from other experiences, in order to find common strategies to be adapted in the Mediterranean framework; to learn from common coordination, collaboration and confrontation; to test and improve contributions on ecosystem approach throughout CAMP Projects and in connection with MSP, ECAP process, EU Marine Strategy and the related Good Environmental Status (GES).

The future steps regard the linkage with the Marine Strategy and the ICZM-Marine/Maritime Spatial Planning pointing out the crucial collaboration among CAMP network, with the new ones of Italy and France and also with Greece, and their common interest in activities of coastal spatial planning.

I strongly believe that the network will offer to the Mediterranean area the chance of improving its environment and sustainable development, contributing to give meaning and implementing the so called 'Blue Growth', the long term strategy to support sustainable growth in the marine and maritime sectors as a whole.

Once again I thank you for this opportunity to give a message to the participants of the MSP Greek project inception meeting, as a good occasion to construct exchange experience and



lessons learned by other Countries and related stakeholders for a better environmental protection, living resources conservation and sustainable development in the Mediterranean Sea.

I wish all of you successful implementation of the follow-up and challenging ideas!

Thank you, thank you very much.

Looking forwards to reading from you,

Daniela Addis

National Coordinator of Camp Italy Project



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