



# COM&CAP MarInA-Med

*For an Integrated Approach in the Mediterranean Area*



## ANNEXES

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# On the methodology and reading of the Annexes of the Policy Paper

The following Annex has been compiled in accordance with the results provided by the Med Maritime Projects. They participated in its drafting by providing their final messages—included in their first page section, as well as the description of their respective outputs and the links to consult them—in their second page section.

Throughout the Policy Paper, references have been made to the Med Maritime Projects, in particular (though not restrictively) when the exposed recommendations came directly from them. By referring to the Annex, the reader can therefore consult in more detail the data and information provided by the projects, whether they be numbers, figures, graphs, maps, reports, action plans, etc. and hence see how the recommendations from the Policy Paper are based on the grounds of the project results.

**\* The projects are listed in alphabetical order \***

### MAIN MESSAGES

-  Technological, socio-economic and environmental aspects should be taken into consideration in forthcoming blue energy projects.
-  There are consequential deviations especially as regards national legislation and governance between EU Mediterranean countries.
-  Maritime Spatial Planning and Integrated Coastal Zone Management are important tools in the blue energy chain for identifying actors and implementing (future) plans of intervention in the Mediterranean Sea.
-  The two most important key-actors are Governments, which are legislating and often regulating blue energy procedures, and Industry & Technology. In general, in spite of their supporting roles only, the impacts of other actors can be determinative for the progress of a blue energy project.
-  Clusters are very appropriate vehicles for the promotion of blue energy and the increased competitiveness of the involved industries. Moreover, synergies between public and private actors should be established for more stable funding opportunities.
-  The main challenges for blue energy development are the decrease in blue energy technology costs, the enhancement of investors' dynamics, the flexibility of the licensing procedures so as not to cause significant delays in the numerous stages of a blue energy project, and the incorporation of the local needs and particularities in the environmental impact assessment studies of blue energy installations.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

-  The identification of suitable locations for the installation of blue energy projects according to energy resources, environmental impacts, uses of the sea, etc.;
-  The identification of the most suitable blue energy technologies for the Mediterranean Sea;
-  The reducing of investment and operation costs;
-  The development of zones for testing blue energy technologies;
-  The reducing and study of the environmental impact of blue energy projects;
-  The design and implementation of environmental monitoring campaigns in blue energy zones
-  The improvement of transmission systems and infrastructures;
-  The integration of blue energy projects within other activities (aquaculture, desalination...).

#### POLITICAL AND GOVERNANCE FOCUS ON:

-  The definition of protocols, plans and laws for the implementation and installation of blue energy projects;
-  The development of Maritime Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM);
-  The promotion of blue energy projects in islands;
-  The improvement of financing by new tools and schemes;
-  The increase of blue energy benefits to local communities, hence improving social acceptance.

## KEY DELIVERABLES

### **STUDY ON ONGOING AND FUTURE INITIATIVES AND AVAILABLE FUNDS (AVAILABLE HERE)**

The objective of this document is to get a complete map of the state-of-the-art and of available future funds for blue energy actions. This Study consists in a detailed map of ongoing initiatives in the blue energy field and planned actions in the next programming period. It highlights possible synergies, possible duplicates, probable gaps, emerged needs, available funds, existing technology. The area of research is the MED regions of the countries represented in the partnership.

### **STUDY ON RELEVANT TERRITORIAL ACTORS (AVAILABLE HERE)**

For the efficient preparation towards blue energy development in the Mediterranean Sea, apart from the existing/foreseen blue energy technologies, the appropriate identification of the key actors that will play a relevant role at national, regional and local level is also crucial. These actors are mainly identified according to previous experience from northern Europe. Government, Research and Academia, Industry and Technology, NGOs, Media and local actors are included in relevant analysis.

### **VALUE CHAIN SCHEME FOR COOPERATION (AVAILABLE HERE)**

Following the mapping process on the actors and blue energy technology developments, along with the available economic data and the market status in the Mediterranean Sea, a value chain system has been developed in order to define the current situation, assess potential implications among the actors and evaluate scenarios as regards blue energy development in this basin. In addition, the process of value chain analysis can lead to the definition of a potential clustering action.

### **GUIDELINES FOR FUTURE COOPERATION PROJECTS ON BLUE ENERGY (AVAILABLE HERE)**

The guidelines are a report useful for addressing, accompanying and facilitating future cooperation projects on marine energy, identifying the most important action lines to be developed in order to activate blue energy projects in the Mediterranean. The guidelines include general advice and recommendations at programme level for some issues which are important to guarantee the success of the Med Programme. Interaction with other cooperation programmes are also taken into consideration.

## MORE INFORMATION ABOUT BLUENE

<http://www.medmaritimeprojects.eu/section/bluene>

**LEAD PARTNER:** NATIONAL INTER-UNIVERSITY CONSORTIUM OF MARINE SCIENCES (CONISMA)

**PARTNERS:** URBAN ECOLOGY AGENCY OF BARCELONA, ZADAR COUNTY DEVELOPMENT AGENCY – ZADRA, HCMR GREECE

**COUNTRIES:** ITALY, SPAIN, GREECE, CROATIA

## Cruise and passenger ship Air quality Impact Mitigation ActionS

### MAIN MESSAGES

- Air pollution mitigation of passenger ships needs complementary and integrated policies and planning, from international to national and local levels, to find the most effective solutions that minimise the impact on population, the environment and the cultural heritage of Mediterranean port cities.
- European and international policies on fuels, engine technologies and ship emission abatement, by acting on a wider domain, could be very effective in the mitigation of negative impacts on public health and the environment; on the contrary, local regulations on these issues could penalise single harbours that try to reduce ship impacts on a local scale. Nonetheless, planning strategies on the local scale could be more effective in implementing specific mitigation actions, such as displacement of ship terminals or manoeuvring routes, which could significantly reduce the population exposure.
- Considering air quality limits set by the current European legislation in order to protect human health, the hourly nitrogen dioxide (NO<sub>2</sub>) concentrations are those of major concern among all air pollutants emitted by passenger ships.
- The shift to a passenger ship fleet with engines fuelled by Liquefied Natural Gas (LNG) is a very effective air quality mitigation scenario for the foreseen growing emissions in maritime tourist traffic.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

- In Mediterranean harbour areas, where high population density often coexists with industrial sites, there is a need for technical projects and initiatives that address the monitoring and management of the environmental risks in an integrated perspective;
- Focusing on air pollution, European funding could enhance and promote the development of integrated monitoring networks. These networks would use harbour activity information, territorial data, and air quality measurements, and through the use of modelling tools would allow a better air quality assessment both in space and in time.

#### POLITICAL AND GOVERNANCE FOCUS ON:

- Future cooperation projects on governance level, aiming at mitigating air pollution due to maritime transport, should promote, strengthen, and enhance networking between Ports, Local Environmental Authorities and Scientific Institutions.

### KEY DELIVERABLES

#### **AIR POLLUTANT PASSENGER SHIPS EMISSIONS DATABASES & CONCENTRATION MAPS FOR AIR POLLUTANTS EMITTED BY THOSE SHIPS FOR PRESENT AND FUTURE MITIGATION SCENARIOS ([AVAILABLE HERE](#))**

Estimations of air pollutant emissions by passenger ships (European reference methodology—EMEP/EEA, 2013), based on passenger ship movements of 2013 in each CAIMANs pilot harbour, considering for years 2020 or 2025 both midterm developments and possible mitigation scenarios (on-shore Power Supply, terminals displacement, fleet conversion to LNG fuel).

Estimation of air pollutant concentrations in each local domain around the harbours, considering the previous listed emission scenarios, using high-resolution dispersion models. Computing and mapping of statistics for each pollutant (yearly averages, daily or hourly percentiles) related to the Air Quality Limits (EU Legislation—AQD 2008/50/EC).

#### **POPULATION EXPOSURE MAPS OF AIR POLLUTANT CONCENTRATIONS DUE TO PASSENGER SHIP TRAFFIC FOR PRESENT AND FUTURE MITIGATION SCENARIOS ([AVAILABLE HERE](#))**

Population living in the harbour cities where air pollutant concentrations due to passenger ships exceed various percentages of the Air Quality limits set by the European Legislation (AQD 2008/50/EC).

#### **CREATING A STAKEHOLDERS-PROVIDERS NETWORK IN THE MEDITERRANEAN BASIN INVOLVING PORT AUTHORITIES AND INSTITUTION IN CHARGE OF AIR QUALITY MANAGEMENT THROUGH A CONSULTATIVE PARTICIPATION SURVEY ([AVAILABLE HERE](#))**

Questionnaire aimed at studying local Med stakeholders' involvements in the actions carried out and proposed by the project. It focused on: (1) the state of implementation of air pollution monitoring and management integrated tools, (2) local interests and expectations towards policies and funding opportunities to be addressed and promoted at local and/or transnational scale for the mitigation of air quality impact of maritime passenger traffic. This led to the obtaining of a stakeholders-provider network and a complete database.

#### **IDENTIFYING RELEVANT ISSUES TO NORTHERN AND SOUTHERN MED PORTS WITH REGARD TO ACTIONS/MEASURES; PLANNING POLICIES FOR THE MITIGATION OF MARITIME TRAFFIC AIR QUALITY IMPACT ([AVAILABLE HERE](#))**

Tables, graphs and maps reporting the analysis of data collected through the above-mentioned questionnaire. Identification of the most relevant issues, gaps and critical end points, showing common and transnational aspects that still need to be analysed, and suggesting directions for further development and improvement of the work done within the CAIMANs project.

### MORE INFORMATION ABOUT CAIMANs

<http://www.medmaritimeprojects.eu/section/caimans>

**LEAD PARTNER:** ARPA VENETO-REGIONAL AGENCY FOR ENVIRONMENT PROTECTION IN VENETO REGION

**PARTNERS:** UNIVERSITY OF GENOA – DEPARTMENT OF PHYSICS, ARISTOTLE UNIVERSITY OF THESSALONIKI, AIR PACA – QUALITY OF AIR, SPANISH RESEARCH COUNCIL – INSTITUTE OF ENVIRONMENTAL ASSESSMENT AND WATER RESEARCH (IDAEA)

**COUNTRIES:** ITALY, FRANCE, SPAIN, GREECE

## Maritime Clusters supporting Research & Innovation to enhance Blue Economy Entrepreneurship

### MAIN MESSAGES

-  The mapped maritime clusters of the participating countries have incorporated R&D activities in their operations through the involvement of Institutes and Universities. Considering the level of R&D and Innovation that is applied by the Maritime Clusters of Northern Europe or Japan, they present improvement prospects.
-  The consortium identified 5 targets that a cluster should achieve through its operation (R&D and Innovation, Environmental Protection, Competitiveness, Internationalization and Development), and 5 factors that are the means which contribute to the mentioned objectives (Legislative Framework, Structure/Functions, Knowledge Management, Financing and Networking).
-  The Maritime sectors of Blue Biotechnology, Blue RES and Mineral Resources are not addressed by the project, due to the fact that following the mapping task, it was identified that these sectors are at their initial phases of design and development in the participating countries.
-  The current situation offers a series of opportunities for co-operation and the creation of synergies among different regions and countries that could play a crucial role in the development of the existing clusters or even create new ones at macro-regional level.
-  The co-operation of the players of triple helix, namely the State, the Market and Academia, should be promoted and adopted by the synergetic structures and clusters, since this interaction is crucial for their further development and support.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

-  The creation of more opportunities and incentives for the outward expansion of the maritime sector aiming at enhancing the development of synergies among different regions or countries;
-  The enhancing of co-operation among the players of the Triple Helix, namely the State, the Market and Academia, in each one of the addressed maritime sectors and exploitation of the positive aspects of this interaction;
-  The investment in the training of Human Resources and the organisation of seminars and workshops aiming at informing the involved bodies regarding Innovation, Competitiveness, Sustainability, and Outward Expansion aiming at creating added value;
-  The consideration of Research, Development and Innovation as major priorities that have the ability to create competitive advantages to the sectors which they would be applied to.

#### POLITICAL AND GOVERNANCE FOCUS ON:

-  Strengthen the support offered by European Regulations and legislative frameworks in order to improve the position of MED maritime sectors at international level and for them to become more competitive in comparison with other countries that offer cheaper services;
-  Offer more funding opportunities with less bureaucratic processes and more support to the players that are involved in maritime sectors aiming at investing in quality services that will boost their developments.

### KEY DELIVERABLES

#### **TRIPLE HELIX MATRIX ([AVAILABLE HERE](#))**

Triple Helix Matrix is the core methodology that intends to involve representatives of State, Business & Academia (Triple Helix) in a survey in order to define current status situation & relevant recommendations for the maritime sectors & respective clusters that are addressed through the project. The consortium has identified 5 targets that a cluster has & 5 factors to achieve the targets & through their combination they created 25 questions that were posed to the Triple Helix representatives.

#### **HYPOTHESES OF BLUE ECONOMY SCENARIOS ([AVAILABLE HERE](#))**

The application of the Triple Helix Methodology resulted in the production of the Blue Economy Maps that present the situation of the maritime sectors and the operation of the clusters at MED level. Based on the Maps and the maritime strategy that is followed and promoted by the EU, the consortium is defining concrete synergies that could enhance the cooperation among the involved areas, representing ecosystem combinations, as well as recommendations for the enhancement of Blue Growth.

#### **MED REGIONS ACTION PLAN AND REGIONAL REPORTS – RECOMMENDATIONS ([AVAILABLE HERE](#))**

CoRINThos consortium based on the results of the previous tasks and more specifically on the hypothesis of Blue Economy scenarios in order to prepare and propose a MED Region Action Plan regarding the enhancement of Blue Growth and Maritime sectors and clusters. The Action Plan will focus on the next Programming period, pointing out concrete growth potentials regarding training needs, financing channels, networking etc.

#### **DRAFT TERMS OF REFERENCE FOR PILOT ACTIONS FOR THE 2014-2020 PERIOD ([AVAILABLE HERE](#))**

The final objective of the project is the production of a draft version of the Terms of Reference that could be used by the Programme in order to address the appropriate issues, stakeholders, partnerships and synergies through the future calls for proposals. The concept of the ToRs will be to test Blue economy sectors and associated geographical synergies at MED and sub-MED level and allow the next programming period to move on to pilot activities.

## MORE INFORMATION ABOUT CoRINThos

<http://www.medmaritimeprojects.eu/section/corinthos>

**LEAD PARTNER:** OFFICIAL CHAMBER OF COMMERCE, INDUSTRY AND SHIPPING OF SEVILLE

**PARTNERS:** MARITIME CLUSTER OF BALEARIC ISLANDS, CHAMBER OF COMMERCE INDUSTRY CRAFT AND AGRICULTURE OF VENICE, MARITIME INSTITUTE OF EASTERN MEDITERRANEAN, UNIVERSITY OF THE AEGEAN – RESEARCH UNIT

**COUNTRIES:** ITALY, SPAIN, GREECE, CYPRUS

## Renewable Energies in the marine-coastal areas of the Adriatic-Ionian region

### MAIN MESSAGES

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The Mediterranean Sea has a very high natural potential for the exploitation of renewable energy sources. In particular solar thermal and photovoltaic are the most used technologies in the Adriatic-Ionian Region not only because of its ideal geographic position and natural potential but also for the best incentives system these technologies benefit from. Even wind and marine energy represent promising sectors although different barriers – both structural and administrative – still need to be overcome (high investment costs, uncertainty of the legal-political framework, grid connections limits, and social acceptability).
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Despite the great energy potential of the Mediterranean, the exploitation of renewable energy sources is still limited and a lot of efforts have to be made to pave the way to disseminate Blue Growth by boosting the renewable energy sector.
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The involvement of the private sector – which could provide investments – and of all stakeholders (local and regional institutions, governments, universities, economic associations) is essential to solve the technical and non-technical barriers that contrast with the dissemination of renewable energies technologies. This involvement is also necessary to increase social acceptance for blue energy implementation.
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The development of new and more suitable technologies whose investment costs are particularly high is crucial for assuring a renewable energy widespread. In addition, the different analyses undertaken have showed serious gaps in relation to the potential of energy sources, the spread of energy plants, and the lack of cost-benefit analyses.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

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To sustain Research & Development on technologies to lower the investment costs;
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To sustain Research & Development and pilot projects to solve technical problems related to sea impacts such as erosion, strong winds, marine storms, etc.;
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To sustain Research & Development on data collection and analyses which is quite weak;
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To spread best practices and create for instance a network of tourist ports that have been developing initiatives on energy efficiency and on renewable energies.

#### POLITICAL AND GOVERNANCE FOCUS ON:

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To increase awareness of the local community on the importance of Renewable energy (to extend for instance the use of the French law on Public Debate to share views and strategies);
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To develop tools and strategies to ensure concrete benefits to the local community from the deployment of renewable power plants (e.g. to introduce at regional or local level a sort of mechanism for ensuring some positive impacts – such as the Payment for Environmental Services (PES) mechanism);
- 

To improve incentive systems that better reward small and medium-sized plants (national laws already are into force but could be improved in that sense);
- 

To connect Maritime Spatial Planning with Blue Energies.

## Renewable Energies in the marine-coastal areas of the Adriatic-Ionian region

### KEY DELIVERABLES

#### **FINAL REPORT ON RES AVAILABILITY, THE EXISTING INSTALLATIONS, AND THE NATIONAL AND LOCAL LEGISLATION IN EACH COUNTRY INVOLVED (AVAILABLE HERE)**

MED countries are endowed with a huge solar and wind energy potential which could bring various benefits to the MED region. Exploitation of sea energy (wave, tidal, heat pumps) for electricity and heat production is also one of the most promising sectors but the use of e.g. heat pumps is still relatively modest. Providing incentives—subsidies, grants for their use—could help overcome these barriers. To increase the exploitation of renewable energy sources in marine coastal areas there is a need to adapt the policy framework that will provide an effective management and which will guarantee a sustainable development of MED area.

#### **FINAL REPORT: 4 DETAILED ANALYSES OF TECHNOLOGIES UNDER INVESTIGATIONS (AVAILABLE HERE)**

Main technical and economic information for the analysed technologies. Data for these technologies were collected from existing installations in Europe and the Mediterranean area, and listed in tables prepared for each technology followed with list of existing literature. Data from technology tables together with information on existing literature can be a very good starting point in future case studies analyses.

#### **STATE-OF-THE-ART STUDY OF THE RENEWABLE ENERGY SECTOR IN THE A-I COASTAL-MARINE AREAS (AVAILABLE HERE)**

State-of-the-art on the technical, economic, environmental, and legislative general framework of Renewable Energies development in the Adriatic Ionian Region. The main highlighted problems are high initial investments and lack of proper support by the States. At present, there are still many obstacles to be overcome to achieve the promotion of renewable energy sources and their production to a higher level. The main problem is presented by national authorities who have to simplify procedures and authorisations for the installation of various RES plants.

#### **FINAL REPORT: PROPOSALS FOR FUTURE PROJECTS FOR THE EXPLOITATION OF RES (AVAILABLE HERE)**

8 case studies on Renewable energy use in different locations in the Ionian: the technologies included seawater heat pump systems, solar cooling systems, vertical wind turbines, off-shore horizontal wind turbines and wave energy converters. The payback periods of the investments and the Net Present Values were not favourable except in simulations benefitting from public investment (state subsidy) either for the capital cost of the produced electricity or its feed-in tariff. However, due to the environmental benefits of these technologies (e.g. reduced greenhouse gas emissions) and the need to stop dependence on fossil fuels, public support for the most promising of them would increase their use and help overcome economic and technological (for tidal energy) barriers.

### MORE INFORMATION ABOUT ENERCOAST

<http://www.medmaritimeprojects.eu/section/enercoast>

**LEAD PARTNER:** PROVINCE OF RIMINI

**PARTNERS:** CORTEA S.C.R.L., GOLEA (GORISKA LOCAL ENERGY AGENCY), UNIVERSITY OF ZAGREB – FACULTY OF MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE, UNIVERSITY OF THE AEGEAN – RESEARCH UNIT

**COUNTRIES:** ITALY, GREECE, SLOVENIA, CROATIA

## Fisheries Governance in the Marine Protected Areas: Potential for the Blue Economy

### MAIN MESSAGES

- MPAs should have a management plan and actual resources for implementing it (esp. surveillance for limiting illegal activities, and monitoring to develop an adaptive co-management).
- MPAs should engage small scale fishermen in fishing ruling and management, so as to obtain their cooperation in assuring the application of rules.
- Local fishermen should be represented by a unique body, to be involved from the outset in the drafting of fisheries regulations.
- New legal tools should be developed to allow formal power sharing between MPA managing bodies and stakeholders (i.e. co-management).
- Since the short-term effect of fishing regulations within MPAs is the reduction of the fishing effort, MPAs should develop/support all activities able to ensure additional sources of income for local fishermen (e.g. “pescaturismo”).
- New legal tools, like the “Marine Reserves of Fishing Interest” in Spain, to widen the available set of institutional tools for sustainable fisheries.
- Cooperation among neighbouring MPAs (e.g. the Network AdriaNet).

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

- The performance of scientifically sound studies on ecological, economic and social aspects related to small scale fishing management in MPAs;
- The updating of studies and data concerning the relationship between the status of fishery resources and the status/health of the marine environment;
- The development of specific studies on ecological connectivity among different MPAs, and on areas of particular relevance in the development of species of commercial interest;
- The fostering of incentives promoting sustainable small scale fisheries (e.g. awareness campaigns) and activities ensuring additional income for local fishermen (e.g. labelling of fisheries catches);
- The development of proper systems for monitoring the economic and environmental effectiveness of a co-managed fishery system.

#### POLITICAL AND GOVERNANCE FOCUS ON:

- The clarification of the geography of small scale fishery governance (e.g. through a “stakeholders analysis”) in different contexts and countries;
- Despite the effort that MPA managers can make in order to informally engage fishermen and other stakeholders, new legal tools are required to ease stakeholder engagement and reach a true co-management by sharing decisional power between national/regional management bodies and stakeholders;
- Such co-managed fishery systems should be supported by local administrations, through direct (e.g. fiscal benefits) and indirect (e.g. communication) actions.

## Fisheries Governance in the Marine Protected Areas: Potential for the Blue Economy

### KEY DELIVERABLES

#### **QUALITATIVE STUDY ON EXISTING CONFLICTS, IMPACTS, SYNERGIES, ETC. AND IDENTIFICATION OF BEST PRACTICES AT MEDITERRANEAN LEVEL (AVAILABLE HERE)**

31 MPAs (from 5 countries: Spain, France, Italy, Greece, Croatia), having a formally established management body, were the case studies. A questionnaire and literature analysis were the data sources for identifying the Best Practices (BP), carrying out Stakeholder and SWOT analyses. The results show that there are few key attributes for defining a BP: MPA enforcement, fishermen engagement, incentives for sustainable fishing, management plan. Among stakeholders, besides the obvious ones (e.g. fishermen) some others (diving centres, restaurants) play an important role. The SWOT confirmed that besides the numerous strengths, the main weaknesses are the low level of stakeholder engagement in MPA management, while opportunities show a high potential for sustainable fisheries and the Blue Economy.

#### **IDENTIFICATION OF ALL THE POTENTIAL BLUE ECONOMY-RELATED SECTORS LINKED TO FISHING ACTIVITIES IN MEDITERRANEAN MPAs (AVAILABLE HERE)**

The possibilities for the Blue Economy related to small scale fisheries are numerous: from a "value-chain" approach ("zero Km" restaurants, processing plants, promo-trading management, branding, etc.) to the certification of the quality of fish resources (especially for under-estimated commercial species). Of course, there is a need for public incentive measures (e.g. training, equipment renovation, preferential access to fish resources, etc.) and promotion/communication of multi-purpose fishery SMEs (pescaturismo, handicraft, ittiturismo, cooking, etc.). Finally, networking with other MPAs on tourism, fish marketing, fund raising, etc. can be very effective.

#### **MODEL OF FISHING GOVERNANCE (BY MPA MANAGERS AND NATIONAL RELEVANT INSTITUTIONS) MATCHING CONSERVATION GOALS AND SUPPORTS/ENHANCES THE LOCAL ECONOMY (AVAILABLE HERE)**

There is a wide range of different models, from the formal centralised system (as an MPA managed by a Ministry) to voluntary initiatives for marine environment conservation by fishermen cooperatives/associations. FishMPABlue is finalising a "Toolkit for planning and managing sustainable small scale fisheries in and around MPAs", i.e. a set of feasible actions/measures in order to have a satisfactory level of conservation through an actual involvement of main stakeholders (primarily artisanal fishermen) in the governance system

#### **IDENTIFICATION OF THE MAIN STAKEHOLDERS AND POTENTIAL PARTNERS FOR A PROJECT WHICH TESTS SUCH A MODEL IN PILOT MPAs (AVAILABLE HERE)**

MPA managing authorities, local small scale fishermen, as well as competent ministries and other public institutions (e.g. Port Authorities) will be involved in the new project's activities. Potential partners are the FishMPABlue partners plus those of the Advisory Panel members who showed a great interest towards the next stage of our strategy.

### MORE INFORMATION ABOUT FishMPABlue

<http://www.medmaritimeprojects.eu/section/fishmpablue>

**LEAD PARTNER:** FEDERPARCHI – EUROPARC ITALY

**PARTNERS:** IUCN CENTRE FOR MEDITERRANEAN COOPERATION, UNIVERSITY OF NICE – SOPHIA ANTIPOLIS – ECOMERS, WWF EUROPEAN POLICY PROGRAMME - BRANCH OFFICE

**COUNTRIES:** ITALY, FRANCE, SPAIN

## Integrated Actions to Mitigate Environmental Risks in the Mediterranean Sea

### MAIN MESSAGES

-  The integration of data on environmental pressures caused by different sectors is crucial to achieve a complete picture of the complex nature of their potential impacts, namely cumulative impacts, on coastal and marine environments;
-  Harmonised trans-boundary socio-economic and environmental data, at higher scales and good resolutions are required, in order to analyse spatially explicit patterns of environmental change;
-  More MPAs of sufficient size should be designated in areas of particular importance for marine biodiversity in ecoregions other than the Western Mediterranean, especially in the Non-European coastal habitats and high / deep sea biomes, to reach the 10% MPA coverage target stated in the CBD at national and ecoregional scales;
-  The level of management effort is a key contributor to mitigate pressures and to reduce impacts on biodiversity in MPAs located in areas with high surrounding pressures;
-  Environmental pressures (e.g. invasive alien species) seem to appear by geographical characteristics: closed and less exposed sea regions tend to have a higher sensitivity to pressures resulting in higher impacts. Measures and political efforts should therefore consider and adapt as threats are thus ecoregion-specific;
-  Need for political incentives to coordinate multi-sectoral political efforts in all relevant sectors (e.g. tourism, environment, industry) towards an integrated type of sustainable management;
-  The accounting of spatial and temporal trends in the Mediterranean coastal and marine environment is crucial for monitoring long term effectiveness of policies towards sustainable development in the region;
-  Localised impacts on marine environment resulting from specific maritime uses could be very damaging to biodiversity if not monitored adequately; this calls for enhancing data availability to support monitoring efforts.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

 Data harmonisation and comparability of methods through encouraging the continuity of data harmonisation downstream and the addition of further details upstream, via the close collaboration between public data producers at regional and country levels, ensuring data reliability, stability, and comparability in terms of methods and data generation. A network of researchers with regional and national statistics institutions would feed into this basis and encourage the continuity of data harmonisation downstream / addition of further details upstream. It would function on 4 main pillars: (1) a better understanding of local data, (2) an improvement of capacities and techniques for acquiring and compiling local data, (3) a solid approach for the harmonisation and definition of indicators, (4) the setting of common tools in GIS and interactive cartography platforms.

#### POLITICAL AND GOVERNANCE FOCUS ON:

 An integrative policy framework implementation for achieving the vision of a sustainable Mediterranean region and the deployment of sustainable development policies to ensure economic development, reduce social disparities, ensure sustainable management of natural resources, and improve governance at the local, national, and regional levels. The implementation of such a framework would involve multi-sectorial experts, researchers, and policy makers to define sustainability for their surroundings and to set the way of measuring it as a self-monitoring benchmark intended to support stakeholders monitoring the sustainability of their developments using a region-wide Sustainable Development Indicator System.

### KEY DELIVERABLES

#### **TECHNICAL REPORT ON DATA (AVAILABILITY, COVERAGE, GAPS, AND DATA MANAGEMENT), INCLUDING MAP SERIES IDENTIFYING REGIONS WITH SPECIFIC PRESSURES AND IMPACTS AS WELL AS FINAL SPATIAL DATA BASE (AVAILABLE HERE)**

Series of Med-IAMER's thematic factsheets and maps [Knowledge on socio-economic drivers, derived pressures and impacts per ecoregion studied within MED-IAMER] <http://www.medmaritimeprojects.eu/section/med-iamer-redirect/outputs>

- o Eight Factsheets on the Adriatic Ionian ecoregion;
- o Eight Factsheets on the Western Mediterranean ecoregion;
- o One factsheet on marine protected areas;
- o One factsheet on the policy framework evaluation;
- o One factsheet on cumulative impacts.

#### **SYNTHESIS REPORT ON THE REGIONAL STATE OF THE ART COOPERATION TRAJECTORIES, INCLUDING SUMMARY ON STATE OF THE ENVIRONMENT IN THE PILOT SITES (AVAILABLE HERE)**

#### **SYNTHESIS REPORT OF STAKEHOLDERS' CONSULTATION, INCLUDING LIST OF STAKEHOLDERS CONSULTED AND MINUTES OF MEETINGS (AVAILABLE HERE)**

Med-IAMER on-line questionnaire [Stakeholders' consultation process]:

[https://docs.google.com/forms/d/1PiPjMDr4L8GL75W3PYIO\\_ZHo6FvPdXrdwxOAYF3OXeU/viewform?edit\\_requested=true](https://docs.google.com/forms/d/1PiPjMDr4L8GL75W3PYIO_ZHo6FvPdXrdwxOAYF3OXeU/viewform?edit_requested=true)

#### **FINAL REPORT ON MED-IAMER RECOMMENDATIONS (AVAILABLE HERE)**

Incorporating regional stakeholders' inputs on data needs and account for their judgment on the effectiveness of cooperation mechanisms and trans-boundary arrangements put in place to overcome trans-boundary conflicts in the region. So far the final report has not been submitted yet, but in the coming month it will be available on the project's website.

### MORE INFORMATION ABOUT Med-IAMER

<http://www.medmaritimeprojects.eu/section/med-iamer>

**LEAD PARTNER:** UNIVERSITY OF MALAGA – EUROPEAN TOPIC CENTER ON SPATIAL INFORMATION AND ANALYSIS  
**PARTNERS:** AVITEM – AGENCY FOR SUSTAINABLE MEDITERRANEAN CITIES AND TERRITORIES, UNIVERSITY OF THESSALY, PLAN BLEU  
**COUNTRIES:** SPAIN, FRANCE, GREECE

### MAIN MESSAGES

-  All traditional maritime economic sectors currently operating in the Mediterranean are expected to grow and expand over the next 15 years, including tourism, shipping, and aquaculture. Comparatively new or emerging sectors such as renewable energy, seabed mining and biotechnology are expected to grow even faster. The extremely fast development of the number of offshore oil and gas exploration contracts over the past few years should be emphasised;
-  It is difficult to determine the whole range of specific interactions among maritime activities, their pressures on the marine environment and their cumulative impacts. In conjunction with climate change, the expected growth of the use of maritime space poses a considerable threat to the health of already-stressed Med ecosystems;
-  These trends also generate significant conflicts among sectors, for instance among sectors that rely strongly on marine ecosystem services (marine and coastal tourism, fisheries, and aquaculture) and extractive industries and maritime traffic;
-  The risk is high of failing to achieve Good Environmental Status by 2020 for 7 out of 11 of the descriptors of the Marine Strategy Framework Directive in the Mediterranean Sea. Similarly, the results highlight the challenges for the EU to meet the Convention on Biological Diversity Aichi Target 11, which requires 10% of EU waters to be within MPAs or other effective area-based management measures by 2020;
-  Preventing or reducing environmental damage and achieving sustainable use of the marine environment thus remains a huge challenge for the Mediterranean Sea;
-  Guidance on what a “Sustainable Blue Economy” or “Sustainable Blue Growth” looks like, in practice, is missing right now. All this change is happening against a background of vague concepts and relatively weak formulations about what needs to be done to ensure that the Blue Economy is truly sustainable. The context of the future implementation of the Blue Growth Strategy and the Maritime Spatial Planning Directive is still complex and very unclear.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

-  Smart and innovative solutions need to be developed and implemented at a rate that coincides with the increasing exploitation of the seas to tackle these sustainability challenges. Implementation of EU policy tools (MSFD, IMP,...) needs to take into account enlarged temporal and spatial dimensions to better anticipate these challenges: at temporal level, by establishing development trends scenarios of the maritime economy sectors at a minimum of 15 to 20 years scale, and given the semi-enclosed nature of the Mediterranean where any national development may easily impact several neighbouring countries, these trends need to be anticipated at a transnational level;
-  Building shared prospective visions for an integrated ocean management requires agreeing on underlying principles for a Sustainable Blue Economy to ensure that the economic development of the ocean contributes to true prosperity and resilience, today and long into the future. The following principles are key: (1) taking into account EU policy visions of establishing a circular green economy (maximise the recycling of rare metals waste before deep-sea mining), (2) As far as strategic energy development infrastructures are concerned, giving preference to transition to renewable energies. According to the International Energy Agency (IEA) more than two thirds of all proven fossil fuel reserves in the ground should be left aside to have only a modest 50% chance of keeping the Earth below a 2

degree increase in global average temperature compared to pre-industrial times. In the face of the unprecedented development of offshore oil and gas exploration in the Mediterranean, WWF supports a strong approach with a no-go position for new developments, (3) implementing the MSFD ecosystem-based approach as a prerequisite to the management of human activities and the pillar of the implementation of the MSP directive, (4) considering the issue of food sovereignty and thus giving priority to the restoration of fish stocks and their ecosystems, (5) applying the precautionary principle when key data necessary to inform smart decision-making is missing, (6) making clear decision-making processes.

### POLITICAL AND GOVERNANCE FOCUS ON:

-  The practical arrangements for implementing an MSFD ecosystem-based approach need to be clarified and shared at transnational level. The EU must clearly demonstrate its ability to incorporate the MSFD ecosystem-based approach in the EU macro-regional strategies and the implementation of the MSP directive, particularly in geographies that overlap with areas identified by the Convention of Biological Diversity (EBSA);
-  As regards the implementation of maritime spatial planning, the use of decision-making support tools incorporating the value of ecosystem services in spatial scenarios is recommended;
-  Mediterranean Ecologically and Biologically Significant Areas (EBSA) were approved by the Convention on Biological Diversity in 2014. Mediterranean EBSA values, pressures and stressors should be clearly identified so that identified values in Mediterranean EBSAs are protected through application of relevant spatial conservation tools. EU macro-regional strategies areas should incorporate EBSAs in their environmental strategies. The designation of high seas MPAs in EBSAs should be supported;
-  Potential impacts of Blue Growth on MPA networks and their connectivity should be assessed and taken into account in planning processes. Buffer zones between the activities of some maritime sectors (e.g. oil and gas exploration and production areas) and MPAs should be implemented.

## KEY DELIVERABLES

-  **ONE INTERNATIONAL REPORT IN ENGLISH WITH RECOMMENDATIONS TO THE EU (AVAILABLE HERE)**
-  **8 NATIONAL REPORTS IN THE LANGUAGE OF EACH COUNTRY COVERED WITH RECOMMENDATIONS TO THE GOVERNMENTS (AVAILABLE HERE)**
-  **A FEASIBILITY STUDY ON HOW MED MARINE ECOSYSTEM SERVICES AND VALUES COULD BE INTEGRATED IN FUTURE MSP DECISION-MAKING PROCESSES (AVAILABLE HERE)**

## MORE INFORMATION ABOUT MEDTRENDS

<http://www.medmaritimeprojects.eu/section/medtrends>

**LEAD PARTNER:** WWF FRANCE

**PARTNERS:** WWF SPAIN, WWF EUROPEAN POLICY PROGRAMME, BRANCH OFFICE (WWF MEDPO), WWF GREECE, NATURE TRUST MALTA – VALLETTA

**COUNTRIES:** CYPRUS, CROATIA, FRANCE, GREECE, ITALY, MALTA, SLOVENIA, SPAIN

## Mediterranean Environmental Review Monitoring for port Authorities through Integrated Development

### MAIN MESSAGES

- A variety of Environmental Monitoring Systems (EMS) exist in ports. Many European ports monitor a series of environmental parameters according to their activities and challenges. Their approach is often limited to one-off studies and real time systems are uncommon;
- EMS are often part of a more structured approach which includes a sustainable development and communication policy as well as an environmental management system;
- EMS is becoming essential for urban ports very often dealing with the issue of port acceptability in the city, as it: (1) allows real time reactions in case of threshold overruns or environmental incidents and helps to raise awareness in the port, (2) allows communication and transparency with the local community (local authorities, scientific research, media and the general public) while creating confidence in local port-city governance;
- EMS operated by port authorities are frequently independent of the equivalent systems operated by other public agencies (except for air quality in general). Data and policies are seldom exchanged or consolidated.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

- The improvement of EMS by developing and using smart tools at low cost, and considering maintenance and operating cost in the initial stage;
- The widening of the scope of the EMS (currently air & water quality + noise) to waste management, energy efficiency and road traffic;
- Addressing the issue of societal impact of ports on the city through road traffic and urban sites congestion, especially through cruise and ferry activities.

#### POLITICAL AND GOVERNANCE FOCUS ON:

- Promoting and deploying EMS by implementing EMS in port areas to improve knowledge on environmental aspects related with port activities, facilitating decision-making, and ensuring regulatory compliance;
- The development of environmental communication tools between ports and their stakeholders, to facilitate the exchange and consolidation of environmental information;
- The promotion of the development of cooperation agreements between public agencies and port authorities, in order to support sustainable development, not only environmental protection to improve collective environmental governance at the port/city interface;
- The support of experimental solutions in real conditions;
- The encouragement of the exchange of best environmental practices among European ports, in particular regarding the types of data to measure;
- The fostering of partnerships and reflections between ship companies, ports and the destination.

## Mediterranean Environmental Review Monitoring for port Authorities through Integrated Development

### KEY DELIVERABLES

#### **MAPPING OF PORTS WITH ENVIRONMENTAL MONITORING SYSTEMS ([AVAILABLE HERE](#))**

The deliverable provides a map locating the ports studied and visited equipped with an environmental monitoring system.

#### **DATABASE OF ENVIRONMENTAL INDICATORS (“DELIVERABLE #2” - [AVAILABLE HERE](#)) & (TECHNICAL UNIV. OF CRETE WEBSITE - [HERE](#))**

The database of indicators provides a list of the environmental parameters that are studied and monitored in more than 80 ports.

#### **DATABASE OF APPROPRIATE TECHNOLOGICAL SOLUTIONS ([AVAILABLE HERE](#))**

The database of technological solutions provides a non-exhaustive list of existing technologies used by European urban ports to measure environmental pollutions related to air, water, and noise as well as energy consumption

#### **REPORTING & SUCCESS FACTORS FOR ENVIRONMENTAL MONITORING SYSTEMS ([AVAILABLE HERE](#))**

The deliverable consists of a summary of all the information collected during port visits. For each one of the visited ports, the document describes information regarding different aspects:

- Sustainability and communication policies of the port authority regarding environmental issues;
- Environmental management system;
- Environmental monitoring (air quality, noise, water quality, wastes, energy)

The report also shows a comparative analysis between ports, for each of the environmental aspects subject to monitoring.

#### **STRATEGY AND WORKING PAPER ([AVAILABLE HERE](#)) AND GUIDELINES ([AVAILABLE HERE](#))**

Taking into account the studies and the visits of urban ports, the objective of the Strategy and Working Paper is to provide recommendations addressed to port authorities wishing to implement an environmental monitoring system and recommendations for the orientations of the 2014-2020 MED Programme.

### MORE INFORMATION ABOUT MERMAID

<http://www.medmaritimeprojects.eu/section/mermaid>

**LEAD PARTNER:** CHAMBRE DE COMMERCE ET D'INDUSTRIE NICE CÔTE D'AZUR

**PARTNERS:** SEA INNOVATION & BUSINESS CLUSTER – TOULON VAR TECHNOLOGIES (PMP-TVT), FEPORTS – VALENCIA PORT INSTITUTE FOR STUDIES AND COOPERATION, HERAKLION PORT AUTHORITY S.A. (HPA S.A.), ANCONA PORT AUTHORITY

**COUNTRIES:** FRANCE, ITALY, GREECE, SPAIN

### MAIN MESSAGES

-  On the one hand, the Mediterranean represents the world's leading destination in terms of international and domestic tourism, accounting for one third of total arrivals worldwide;
-  Coastal and maritime tourism in the Mediterranean is a growing business and a predominant source of income. It can be a major source of growth and jobs, especially for young people;
-  On the other hand, the Mediterranean is subject to severe anthropic impacts and environmental risks: tourism pressure on territories and citizens, extensive building along the coastline, coastal erosion, worsening conditions of sea water, over-exploitation of natural and cultural heritage;
-  The cross-cutting and cross-border nature of tourism activities and their impacts calls for more integrated management models that can support an Integrated Coastal Zone Management. Integrated models in turn require more complete and reliable knowledge (data, products, services, policies, etc.) pertaining to the sector;
-  The MITOMED project provides an assessed system of cross-sectoral indicators to standardise the collection and comparison of tourism data. It provides a common working framework to set up integrated monitoring and management models of sustainable and competitive tourism in the Mediterranean;
-  MITOMED's cross-sectoral indicator system can help policy makers to make more informed decisions towards integrated marine/maritime strategies, and to foster Blue Growth in a sustainable and competitive way.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

-  The reduction of gaps in tourism data by improving monitoring systems (in terms of coverage, sectors, quality, resolution), improving technical and economic feasibility of data collection and use;
-  The reduction of fragmentation by extending monitoring to other regions; improving availability and interoperability of data, exchanging Good Practices in Integrated Tourism Management, improving dialogue between public bodies and tourism actors and stakeholders;
-  The reduction of tourism pressure by developing alternative types of tourism products to reduce monoculture, concentration and seasonality, favouring prevention, reduction and recycling of natural resources and waste, increasing social dialogue about tourism issues.

#### POLITICAL AND GOVERNANCE FOCUS ON:

-  The design of basin-scale strategies to support sustainable and competitive tourism including green / authentic / experiential and more environmentally conscious tourism, spatial and seasonal differentiation (village tourism & inland connections), investments in innovative products and services through the EU (e.g. Structural Funds) to favour entrepreneurship (youth & women), to develop tourism knowledge and know-how (e.g. by funding science and technology clusters);
-  The launch of joint pilot actions for innovative tourism to develop new and diversified products in coastal areas, to increase stakeholders' openness to innovation, to reach a better distribution of tourists in time and space in order to reduce the pressure in peak seasons, to reinforce nature-based and cultural heritage-based tourism, to favour cooperation between adjacent territories, to develop new markets and stay competitive worldwide, to establish the Mediterranean as a "green" destination, to uphold the digital agenda, to uphold integrated territorial and urban projects.

### KEY DELIVERABLES

#### **GAP ANALYSIS METHODOLOGY ([AVAILABLE HERE](#))**

A shortlist of 34 relevant and feasible indicators was selected from an initial list of 119 indicators (from existing systems: NECSTouR, TSG, ETIS...). The indicators, covering 10 cross-sectoral themes (natural resources, energy, waste, quality of life of residents, of tourists and of work, Conservation of cultural and environmental heritage and of identities, de-seasonalisation, transport) were used by project partners—through data collection and the involvement of regional stakeholders—to profile destinations from the socio-cultural, economic and environmental points of view.

#### **GAP ANALYSIS OF MARITIME & COASTAL TOURISM DATA IN THE MED ([AVAILABLE HERE](#))**

The indicators have been used to measure the economic, social, cultural and environmental implications of tourism activities in the territories. A critical assessment of the various indicators was carried out.

The GAP analysis reveals which data are available and which are not, and defines “ideal thresholds” to be reached under each indicator. The results can be used for monitoring, benchmarking and for the development of actions and policies.

#### **SEA-BASIN SWOT ANALYSIS ([AVAILABLE HERE](#))**

The SWOT analysis is centred on the tourist destination as a whole. It represents the starting point to reflect on the state of the art and the desired future of M&C destinations of each region, to investigate common issues, points to be improved and the above mentioned development potential.

#### **ACTION PLAN FOR MARITIME AND COASTAL TOURISM IN THE MEDITERRANEAN ([AVAILABLE HERE](#))**

The MITOMED Action Plan investigates the development potential of M&C tourism in the MED areas through the implementation of a management model, identifies actions for the realisation of that potential and launches proposals for future transnational actions and projects to improve the governance of Maritime and Coastal Tourism. Actions include: improvement of the data collection systems and interoperability, cross-sectoral co-operation; the development of innovative and “green” tourism products; better enforcement of environmental standards and protection of cultural and natural heritage.

### MORE INFORMATION ABOUT MITOMED

<http://www.medmaritimeprojects.eu/section/mitomed>

**LEAD PARTNER:** TUSCANY REGION – GENERAL DIRECTORATE FOR COMPETITIVENESS OF THE REGIONAL SYSTEM AND DEVELOPMENT OF COMPETENCES, SECTOR “POLICIES AND INCENTIVES FOR THE QUALIFICATION AND DEVELOPMENT OF TOURIST AND COMMERCE DESTINATIONS”

**PARTNERS:** CNR-IBIMET, GIRONA UNIVERSITY, INSTITUTE OF AGRICULTURE AND TOURISM, ANETEL, NECSTOUR

**COUNTRIES:** ITALY, SPAIN, CROATIA, CYPRUS

## NEtworking for the development of maritime tOurism at EUSAIR level

### MAIN MESSAGES

-  Establishment of a permanent and multilevel dialogue between all key stakeholders (policy, academia and fisheries and tourism entrepreneurs) involved in maritime governance at local, regional, national and transnational levels to overcome the reciprocal lack in knowledge, to favour their access to innovation, to develop human capital, to drive and apply new competences, and to stimulate cooperation and clustering;
-  Establishment and application of a common and jointly defined methodology to collect, benchmark and produce data and information in view of periodically monitoring the state of play of fisheries-related tourism and address policy and measures;
-  Target orientated training and mentoring actions to create and increase fishermen's entrepreneurial and innovation skills;
-  Unique selling proposition to increase the attractiveness of Adriatic-Ionian Coastal communities by enhancing the endogenous resources linked to fisheries traditions and setting up tailor-made tourism packages for different targets to reduce seasonality (e.g. schools, senior targets, etc.);
-  Inclusion of transnational tourism itineraries linked to fisheries activities in the implementation plans of regional & national Tourism programmes;
-  A fisherman-centered approach as keeper of maritime culture and traditions and steward of sea resources.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

-  The mapping and monitoring of methodologies to harmonise regional information collection and production;
-  Peer learning within institutions in charge of developing fisheries diversification policies;
-  FLAG approach and best practices transfer towards non-EU countries, and capitalisation towards cohesion for the whole of the Mediterranean sub-region;
-  The promotion of fisheries-related tourism strong community groups clustering to increase visibility and strengthen the impacts;
-  Cooperation projects development in the framework of the EMFF dealing with income diversification and sustainable resources exploitation.

#### POLITICAL AND GOVERNANCE FOCUS ON:

-  Transnational pilot projects on fisheries related tourism to set up a unique selling proposition and tourism offer in the Adriatic-Ionian area;
-  Maximising fund raising at territorial level;
-  A critical review of existing legislative framework at regional and national level to propose amendments and simplification in order to foster the diversification of fishermen's income;
-  The inclusion of the NEMO Adriatic-Ionian Plan actions in the EUSAIR Strategic Plan.

## NEtworking for the development of maritime tOurism at EUSAIR level

### KEY DELIVERABLES

#### **DATABASE ON FISHERIES RELATED TOURISM AT EUSAIR LEVEL, ALLOWING DATA COMPARISON AND PRODUCTION AT MEDITERRANEAN LEVEL (AVAILABLE HERE)**

Detection of gaps and obstacles hindering sustainable development, the opportunities offered by fisheries related tourism, the identification and benchmarking of best practices of transnational value at A-I coastal community level. Foresight SWOT analysis, catalysing future intelligence, creation of medium or long-term visions on present decisions to address a coordinating joint actions process for the sustainable development of fisheries-related tourism in EUSAIR regions.

#### **ESTABLISHMENT OF A PERMANENT TRANSNATIONAL INFORMATION NETWORK ON FISHERIES RELATED TOURISM DEVELOPMENT (AVAILABLE HERE)**

Data and information collection and sharing, fostering of cooperation between institutions, academia and entrepreneurial levels dealing with fisheries related tourism in A-I countries. Its aim is to commonly address policy, technical and socio-economic actions in a long-term vision, to overcome the reciprocal lack of knowledge, to favour their access to innovation, to develop human capital, to drive and apply new competences, and to stimulate cooperation. The network has been formalised in the EUSAIR Strategic Action Plan to ensure results capitalisation and follow-up of the NEMO project.

#### **FORESIGHT STUDIES IDENTIFYING FISHERIES-RELATED TOURISM DEVELOPMENT POTENTIAL AT EUSAIR LEVEL (AVAILABLE HERE)**

Constructively bring awareness of long-term challenges and opportunities of fisheries related tourism into more immediate decision-making. Provide roadmaps and valuable inputs to strategy and policy planning in regions, as well as to the mobilisation of collective strategic and technical actions to be proposed in the EUSAIR Strategic Plan, linking fishing activities to territorial features, potential and vocation.

#### **STRATEGIC ADRIATIC AND IONIAN ACTION PLAN (AVAILABLE HERE)**

Concrete inputs fostering an integrated marine/maritime approach. Concrete inputs for new cooperation projects and ToRs 2014-2020, for the EUSAIR Strategy (particularly I-IV pillars), and for the A-I Sea Maritime Strategy. Mobilisation of the most relevant actors for the sustainable development and competitiveness of coastal communities through maritime tourism and the fisheries-related tourism segment, providing direct linkage to the EUSAIR Strategic Plan. Identification of a set of operational actions of transnational value to concretely support fisheries-related tourism development at institutional, technical and socio-economic levels.

### MORE INFORMATION ABOUT NEMO

<http://www.medmaritimeprojects.eu/section/nemo>

**LEAD PARTNER:** MARCHE REGION – DEPARTMENT OF ENVIRONMENT AND AGRICULTURE

**PARTNERS:** BOLOGNA UNIVERSITY – MARINA BIOLOGY AND FISHERIES LABORATORY, MEDITERRANEAN AGRONOMIC INSTITUTE OF BARI (CIHEAM-IAMB), ERFC WESTERN GREECE, INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT DALMATIA COUNTY

**COUNTRIES:** ITALY, GREECE, CROATIA

## Pollution Monitoring of ship emissions: an Integrated approach for harbours of the Adriatic basin

### MAIN MESSAGES

-  Emission inventories in the four port-cities of the Adriatic/Ionian area (Brindisi, Patras, Rijeka and Venice) showed that maritime emissions of particulate matter and NO<sub>x</sub> are comparable with those of road traffic. Considering the increasing trend of maritime traffic worldwide in the next years, it is clear that this is a pollution source to be taken into serious consideration in the MED area by national and regional governments and by the European authorities.
-  The evaluation of the impact of maritime activities on local air quality should be addressed at transnational level using comparable approaches integrating modelling and experimental results to identify mitigation strategies that could be applied on a large scale (i.e. Mediterranean scale or European Macro-region scale) without hindering the economic competitiveness of the harbours involved.
-  The impact of maritime traffic and harbour activity on atmospheric particulate matter is higher regarding the concentration of small particles (ultrafine and nanoparticles with diameter lower than 200 nm). Particles of this size are currently not considered in the European legislation and therefore there is a limited amount of available data; however concentrations of such particle sizes are a better metric for evaluating the impact of this type of pollution source and for monitoring the inter-annual trends in the near future.
-  The analysis performed for the harbour of Venice showed that the use of low-sulphur content fuels in ships has proven to be efficient in reducing the impact on primary particles concentration (in addition to SO<sub>2</sub> concentrations), however, it had a limited effect on other pollutants like NO<sub>x</sub>, metals and PAHs. Future actions could involve improvement of the international legislation or guidelines to curb ship emissions of these pollutants.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

-  The impact of maritime traffic and harbour activities emissions on local air quality in Mediterranean port-cities is influenced by both in-port emissions and emissions of international traffic (not berthing in MED harbours). It is important to orient future cooperation projects to distinguish the impacts of the two typologies of ship traffic, using robust scientific approaches. This is because mitigation strategies and actions are different for the two typologies of maritime traffic from the technical and the legislative points of view.

#### POLITICAL AND GOVERNANCE FOCUS ON:

-  Export the integrated methodology developed in POSEIDON to investigate the impact of maritime activities on atmospheric pollutants to other coastal cities of the MED basin with focus on ultrafine and nanoparticles (with diameter lower than 200 nm), metals, PAHs and, possibly, carbonaceous species that have a long-term impact on climate. This will give an overview regarding the “weight” of maritime transport in atmospheric pollution compared with other forms of transport (mainly road and air transport in the MED area).
-  To consolidate a network, at Mediterranean scale, among the local and environmental authorities, the research institutions and the public to foster common, large scale, actions for curbing the air pollution impact of maritime transport while still maintaining the economic, commercial and tourist development of MED coastal areas.

## Pollution Monitoring of ship emissions: an Integrated approach for harbours of the Adriatic basin

### KEY DELIVERABLES

#### **ASSESSMENT OF AIR POLLUTION IMPACTS IN FOUR HARBOURS OF THE A-I SEAS: ([AVAILABLE HERE](#))**

An integrated methodology based on an emission inventories methodology, digital models and experimental data has been developed and applied to four port-cities of the Adriatic/Ionian area. Emissions of particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) and nitrogen oxides are comparable, at municipality level, with those of road traffic.

The impacts of ship traffic on PM<sub>2.5</sub> and PM<sub>10</sub> concentrations are variable between 1% and 8% and are larger (between 6% and 22%) on ultrafine particles number concentrations (small particles with diameter less than 200 nm). Impacts on gaseous pollutant concentrations (NO<sub>x</sub> and SO<sub>2</sub>) are 3-5 times larger than that on PM<sub>2.5</sub> and PM<sub>10</sub>.

#### **TECHNICAL REPORT ON THE IDENTIFICATION OF ENVIRONMENTAL POLICY GAPS AND PROPOSAL OF FUTURE COMMON MITIGATION STRATEGIES AND ACTIONS FOR THE ENVIRONMENTAL MANAGEMENT OF HARBOURS OF THE ADRIATIC-IONIAN SEAS ([AVAILABLE HERE](#))**

Ultrafine particles (lower than 200 nm in diameter) are currently not considered in European legislation, however concentrations of such particle sizes are a better metric for evaluating the impact of maritime activities on atmospheric aerosol and for monitoring the inter-annual trends in the future.

Legislations to curb ship emissions address mainly SO<sub>2</sub> emissions (use of low-Sulphur fuels). This has a positive effect also on particulate matter emissions, however, limited or negligible effects are observed on other pollutants (e.g. metals, polycyclic aromatic hydrocarbons, black carbon) that are important for their potential impact on environment (health, climate and ecosystems).

Impact of pollutants released in harbour-related activities (hoteling, loading, unloading of ships) represent an important share of the impact of maritime activities on air pollution. The development and application of guidelines and legislations specific for the logistics management of harbours could be important for local air quality in port-cities.

#### **COMMON PRESENTATION OF RESULTS IN TWO INTERNATIONAL CONFERENCES ([AVAILABLE HERE](#))**

The Project results were presented to and discussed within the scientific community at two International Conferences: 2 presentations at the 17<sup>th</sup> International Conference on Aerosol Science and Technology (ICAST 2015, Lisbon 16-17 April 2015) and 3 contributions at the European Geosciences Union General Assembly (EGU2015, Vienna 12-17 April 2015). Moreover, presentation of a methodology on air quality multi-model ensembles, used for the POSEIDON purposes, at the 34<sup>th</sup> International Technical Meeting on Air Pollution Modelling and its Application (ITM 2015, Montpellier, France). These are important steps to raise awareness on maritime-related atmospheric pollution and to promote and consolidate a network of communication between research institutions, local governments and the public.

### MORE INFORMATION ABOUT POSEIDON

<http://www.medmaritimeprojects.eu/section/poseidon>

**LEAD PARTNER:** INSTITUTE OF ATMOSPHERIC SCIENCES AND CLIMATE, NATIONAL RESEARCH COUNCIL (ISAC-CNR)

**PARTNERS:** UNIVERSITY OF VENICE – CA' FOSCARI, LABORATORY OF ATMOSPHERIC PHYSICS – DEPARTMENT OF PHYSICS - UNIVERSITY OF PATRAS, SCHOOL OF MEDICINE – UNIVERSITY OF RIJEKA

**COUNTRIES:** ITALY, GREECE, CROATIA

## Action Plan towards the Smart port concept in the Mediterranean Area

### MAIN MESSAGES

- Lack of public data, mainly about operational issues and energy management in container ports. The information based on indicators is scarce, and when available is not detailed, real nor updated. Strong resistance to share data or to make it public relative to energy or environmental areas;
- Zero or limited adoptions of standards (in energy, environment, security), especially as regards voluntary ones such as: EMAS, ISO 28000 or ISO 50000;
- Human capital constraints with limited human resources or inadequately trained human resources;
- Constraints in the interface and integration with external stakeholders (public and private) due to the lack of awareness or coordination, limitations in ICT, etc.;
- Limited technology level and inadequate ICT tools for monitoring and optimising intra-port operations and energy consumption;
- Limited waste and air emissions management (excessive and/or untreated waste and emissions in ports);
- Hinterland connections and inadequate links with roads and rail due to infrastructure issues and ICT;
- Limited intra-port infrastructures & superstructures (warehouses, container yards, and berth) to support existing and new logistics activities developed in ports, and to open new opportunities to them (e.g. large vessels).

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

- The awareness and training in Med container ports to be more competitive and sustainable, on the operational, energy, and environmental issues;
- Multimodality, physical & ICT-based connections with hinterlands and accessibility, addressing synchronisation efforts;
- Environmental management, highlighting the management of waste & air emissions perception by citizens;
- Optimisation of the use of intra-port infrastructures & superstructures (warehouses, container yard, berth);
- The integration with external stakeholders & governance;
- The adoption of international standards to ensure an optimal quality, security, safety, environment & energy management of container ports;
- Technology innovation for monitoring and optimising intra-port operations & energy consumption, including the efforts to get a balanced ecological energy mix;
- Transparency & visibility of data & management results.

#### POLITICAL AND GOVERNANCE FOCUS ON:

- The reduction or prevention of environmental impacts & fostering of consideration of the total cost of a port's logistics activities, not only the operational ones but including also the environmental ones;
- The promotion of collaboration and coordination between all stakeholders participating in the supply chains of container ports;
- Encouragements to the sector in the publication of key data linked to management results (operational, energy & environmental ones), as well as comparisons between ports;
- The improvement of connections between ports and big European centres of consumption.

## Action Plan towards the Smart port concept in the Mediterranean Area

### KEY DELIVERABLES

#### **MAP OF THE SMART PORT CRITERIA ([AVAILABLE HERE](#))**

Definition of the criteria that shape the SMART PORT concept. This graphic map shows the features that determine a smart-port including operational, energy, and environmental aspects, "measuring and defining" the real challenge to be tackled by Med Ports in the future.

#### **ANALYSIS OF THE CURRENT SITUATION OF MEDITERRANEAN PORTS ([AVAILABLE HERE](#))**

Knowing the starting point it is essential to plan the future. The analysis undertaken will allow Med Ports to approach and plan their strategies at individual and general level (MED area scope) and will pave the way for future challenges within the framework of the new programming period.

#### **MAP OF COMPETITIVE ADVANTAGES AND DISADVANTAGES ([AVAILABLE HERE](#))**

Detailed description and map of barriers & gaps linked to the different factors that determine the Smart Port trends: this output will lay the grounds to define the future action plan at European level to achieve the Smart Port challenge.

#### **STRATEGIC ACTION PLAN TOWARDS THE SMART PORT CONCEPT, AIMED AT EXPLOITING THE EXISTING POTENTIAL AND AT THE SAME TIME, CONTRIBUTING TO THE DECISION-MAKING PROCESS ([AVAILABLE HERE](#))**

This output will provide Med container ports and the Med Program with a clear set of sound previously agreed guidelines to move forward towards the smart port concept emphasising the following impact areas: operational & energy efficiency, competitiveness & environmental areas.

### MORE INFORMATION ABOUT SMART-PORT

<http://www.medmaritimeprojects.eu/section/smartport>

**LEAD PARTNER:** ANDALUSIAN INSTITUTE OF TECHNOLOGY (IAT)

**PARTNERS:** INSTITUTE OF COMMUNICATION & COMPUTER SYSTEMS (ICCS), INNOVATIVE TECHNOLOGIES FOR ENVIRONMENTAL CONTROL AND SUSTAINABLE DEVELOPMENT TICASS S.C.R.L., PROMETNI INSTITUT LJUBLJANA D.O.O./INSTITUTE OF TRAFFIC AND TRANSPORT LJUBLJANA – PROMETNI, UNIVERSITY OF CADIZ – UCA

**COUNTRIES:** SPAIN, GREECE, ITALY, SLOVENIA

## Enhancing the Growth potential of coastal tourism concentration through an innovative, green and inclusive mobilisation of Med area local assets

### MAIN MESSAGES

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The MED Area continues to be a privileged area in terms of international tourism development. However, the competitiveness of its destinations as well as the sustainability of tourism development might be compromised by a number of global changes that affect society, economy, demography, climate, and hence tourism in the area;
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A better understanding of the mechanisms that transfer these changes to tourism, through the assets that the MED Area mobilises, helps to direct decisions in such a way that the challenges that these changes pose for tourism are dealt with adequately and that the competitiveness and sustainability of – in particular coastal tourism destinations – is safeguarded also in the future. No major investments in information systems are required. It is sufficient to make a better use of existing information sources, in the future explicitly embracing an open data/big data approach;
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Intensive and creative stakeholder involvement in private and public policy making, preferably following the quadruple helix concept, is essential for the eventual success that these integrative, multi-sectoral and innovative policies have for tourism development, and thus for the social and economic development of the MED region.

### HINTS FOR FUTURE COOPERATION PROJECTS

#### TECHNICAL FOCUS ON:

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The results of the Identifier of Potential Tourism Growth (IPTG) econometric model have shown that some of the proposed indicators of the attractiveness of territorial assets could be improved through a more efficient transnational system of statistical data sharing. Furthermore, the competent governmental authorities have not yet adopted an appropriate operational tool (such as the prototype of the DSS designed by the project) able to support an integrated, multi-disciplinary and multi-level tourism development of MED regions.

#### POLITICAL AND GOVERNANCE FOCUS ON:

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The participatory phases of finalising the prototype of the Decision Support System (DSS) by the project partners has clearly pointed out the pivotal need to enhance capacity building and readiness of public policy makers as well as of private stakeholders that are directly or indirectly involved in the tourism sector. This would allow them to cope with the challenge to strengthen the competitiveness and the attractiveness of tourism destination sites in the MED Programme area, while taking into account the new globalised trends, challenges and scenarios of tourism economies.

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## KEY DELIVERABLES

### DATABASE AND MAPS OF TOURISM POTENTIAL (AVAILABLE HERE)

Collection of information (Eurostat, ESPON, 2000-2010 NUTS 2 level) about anthropic, economic, environmental, institutional and social factors (i.e. assets), and about real GDP growth and tourism flows (i.e. outcomes). The series of maps produced describe the spatial distribution and the dynamics of assets and outcomes across the relevant Mediterranean territories. The basic philosophy was to do more with existing statistical information by combining it in an integrative and innovative manner.

### ANALYSIS OF TOURISM DEVELOPMENT POTENTIAL BASED ON MED DESTINATIONS (AVAILABLE HERE)

Investing in tourism represents an opportunity for regional growth. Tourism potential is fully exploited when associated with adequate pre-existing economic infrastructures, since the presence of agglomeration economies combined with natural and anthropic territorial resources is recognised as a fundamental characteristic to stimulate growth. Territorial specificities are considered through the analysis of case studies in each partner country.

### MEASUREMENT OF THE SENSITIVITY OF THE COMPETITIVENESS AND SUSTAINABILITY OF TOURISM TO GLOBAL CHANGES (AVAILABLE HERE)

Measurement through new indicators able to describe the emerging phenomena affecting Med destinations: Education, Change of values and lifestyles, Changing work patterns, Population trends, Urbanisation, Shift of economic barycentre to the South and East, Deregulation/liberalisation of international trade, Population migrations, ICT technologies usage, and Climate change. These fundamental changes will have a huge impact on the competitiveness and the sustainability of tourism destinations, and understanding them better will help the tourism industry and policy makers to enhance the potentials that regional capital offers them to develop tourism even further, as well as to reduce the risks that some of these changes pose for tourism development.

### SMART PACKAGES OF TOURISM POLICIES BASED ON THE CONCRETE NEEDS OF THE STAKEHOLDERS INVOLVED IN TOURISM DEVELOPMENT (AVAILABLE HERE)

Possible operational answers useful to mobilise territorial assets supporting the TT industry. These responses are: contextualised specifically for the MED area, “innovative, green and inclusive” (EU2020 Strategy), identified on the basis of Socio-demographic trends, Economic trends, Political trends, Environment-Resources-Energy Trends, Changes in Technology, and shared with stakeholders. Part of the prototype of the DSS that helps policy makers and entrepreneurs involved in tourism development make inclusive and sound strategic decisions regarding destinations.

## MORE INFORMATION ABOUT TOURMEDASSETS

<http://www.medmaritimeprojects.eu/section/tourmedassets>

**LEAD PARTNER:** UNIVERSITY OF VENICE CA'FOSCARI – DEPARTMENT OF ECONOMICS

**PARTNERS:** UNIVERSITY OF MALAGA, UNIVERSITY OF ALGARVE, UNIVERSITY OF SPLIT

**COUNTRIES:** ITALY, SPAIN, PORTUGAL, CROATIA