RESEARCH AND INNOVATION INITIATIVE FOR BLUE JOBS AND GROWTH IN THE MEDITERRANEAN AREA (BLUEMED)

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On behalf of the BLUEMED ad hoc working group



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SUMMARY:

The framework: Blue Growth in the EU The Blue Med Initiative (BMI):

- Why BMI?
- Objetives
- The Process
- The SRIA
 - The expected impacts and outcomes
- BMI in H2020
 - BMI in other Med Initiatives (EUSAIR, WEST MED)



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What is "Blue Growth" ?

COM(2012) 494 "Blue Growth- Opportunities for marine and maritime sustainable growth"

Blue Growth is the long term strategy to support sustainable growth in the marine and Maritime sectors as a whole. Seas and oceans are drivers for the European economy and have great potential for innovation and growth. It is the maritime contribution to achieving the goals of the Europe2020 strategy for smart sustainable and inclusive growth (maritime dimension of EU2020 for sustainable jobs, growth and cohesion under IMP)

Seas and oceans are drivers for the European economy and have great potential for Innovation and growth



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The EU's Blue Economy:

- 5,4 million jobs
- 500 billion Euro/year gross added value
- 75% of external trade
- 37% of trade within the EU



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Blue Growth Strategy Components

• Develop sectors that have a high potential for sustainable jobs and growth: aquaculture, coastal tourism, marine biotechnology, ocean energy, seabed mining, (shipbuilding and ship repair, fisheries, transport –cargo/ferry, off-shore oil and gas)

• Maritime Policy instruments which provide knowledge, legal certainty and security in the blue economy: (Marine knowledge, maritime spatial planning, maritime surveillance)

 Sea basin strategies to ensure tailor-made measures and to foster cooperation between countries: (Adriatic-Ionian Seas, Baltic Sea, Black Sea, Mediterranean Sea, North Sea, Atlantic Ocean, Arctic Ocean)



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Best use of EU Funds, private funds and relevant Financial Instruments

- 2014-2020: Mainstreaming of maritime policy objectives => more targeted use of funds
- CSF (Common Strategic Framework) funds to support "blue economy" objectives
- Horizon 2020: EU Research and Innovation program, budget €80 billion
- EMFF (European Maritime and Fisheries Fund) 2014-2020, budget €6.4 billion
- Private sector
- EIB (European Investment Bank)



Algarve University, Sept 2016

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SEA BASIN STRATEGIES: THE EU MEDITERRANEAN SPACE



The BLUEMED initiative

The **BLUEMED** Initiative fosters integration of knowledge and efforts of EU member states of the Mediterranean Basin to jointly create new 'blue' jobs and a sustainable industrial growth in the marine and maritime sectors of the area.

It was a priority of the Programme of the Italian Presidency of the Council of the European Union: "....., the Presidency will organise specific events and work with the Commission and Member States to define a Blue Growth flagship initiative for the Mediterranean".

Work goes on under the Italian coordination with 8 other EU Member States (except Portugal, all bordering the Mediterranean): Cyprus, Croatia, France, Greece, Malta, Slovenia, Spain and - since July 2014 – also Portugal. The process is supported and facilitated by the European Commission (DG R&I, DG MARE, DG JRC).



Why **BLUEMED**

The Mediterranean Sea is a basin with unique bio-geo-physical characteristics and political and socio-economic features.

It prominently contributes to the EU economy by:

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- bearing 30% of global sea-borne trade in volume and 25% of worldwide sea-borne oil traffic, with more than 450 ports/terminals;
- hosting the second World's largest market for cruise ships;
- hosting half of the EU's fishing fleet with a prominent and increasing marine aquaculture production;
- providing house along its costs for more than 150 million inhabitants, a figure which doubles during the tourist season;
- hosting an unique cultural heritage and natural patrimony (400 UNESCO sites and 236 marine protected areas).

Why **BLUEMED**

It is facing prominent environmental challenges related to climate change, growing maritime traffic and pollution, overexploitation of fish stocks, invasions of alien species, etc.

At the same time, local biodiversity and deep sea resources, tourism, renewable energy production, etc. are major local opportunities for blue growth and jobs only poorly exploited.

Such challenges and opportunities cannot be addressed/implemented by any of the EU MS individually => a common and shared Vision and a Strategic R&I Agenda (SRIA).



Research and Innovation initiative for Blue jobs and growth in the Mediterranean Venice, Expo Aquae 16.10.2015

BLUEMED Strategic R&I Agenda: objectives

The BLUEMED R&I Agenda (SRIA) aims at addressing the challenges outlined and facilitate to exploit opportunities into blue jobs and growth. EU Member States can achieve this by:

- Exploiting the existing knowledge and filling R&I gaps;
- Integrating marine and maritime sectors, and public researchers, industry (i.e., mining, aquaculture, fishery, shipbuilding, maritime transportation, tourism, etc.), and policy makers, and
- Aligning funding strategies/integration of R&I funds and infrastructures at regional (structural and investment funds), national and EU level, by avoiding duplication, improving the effectiveness in the use of resources and maximizing the leverage effects.

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leeds & Gaps	 May 2014 >> Set up of the initiative and roadmap; June-August 2014 >> National mapping of R&I projects (about 900!) via public/private stakeholders consultations; merging of information and identification of R&I gaps & needs, opportunities and boundary conditions for their implementation.
Vision	 September - December 2014 >> Sharing of the findings with relevant scientific communities and industrial associations at national and EU level. Set up of the Vision Document which was endorsed by the Italian Presidency of the EU Council and presented at the Competitiveness Council of 04-05 December 2014.
SRIA	 February 2015 >> Identification of the Key challenges and goals & actions according to the drivers boosting blue jobs & growth, knowledge transfer and SMEs participation April 2015 >> drafting of BLUEMED Strategic Research and Innovation Agenda (SRIA). May-September 2015: Sharing of SRIA with regional, national, EU and international public/private stakeholders; October 2015 : Publication of SRIA (updates will be made regularly every year) endorsed by 14 EU Countries; 10 signed the Venice declaration on October 16,2015)

BLUEMED Vision & SRIA available at: goo.gl/ZbJTWH

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BLUEMED Strategic R&I Agenda: 12 Key Challenges

Key enabling knowledge for the **Mediterranean**

- Mediterranean Sea ecosystems: services, resources, vulnerability and resilience to natural and anthropogenic pressures
- BLUENED SRIA available at: goo.gl/ZbJTWH Mediterranean Sea dynamics: developing services in the filed of sustainable ada and to

and protection of coastal areas in the Mediterranean

Key sectorial enablers in the Mediterranean

- Innovative business based on marine bio-resources in the Mediterranean

 Maritime Spatial Planning & Integrated Coastal Zone Management in the Mediterranean

Enabling technology and capacity creation for the **Mediterranean**

- Smart, greener maritime transport and facilities the Mediterrop
- graphy capacities m the Mediterranean
- Multi-purpose off-shore
- cultural heritage in the Mediterranean: discovering, protecting and valuing



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Expected impacts of the BLUEMED initiative

The implementation of the BLUEMED initiative will result in:

- New multidisciplinary R&I and cooperation MS joint activities and programmes addressing the relevant Mediterranean challenges;
- □ Innovative marine-based technologies, methodologies and approaches for the local and European maritime sectors and the conservation and upgrading of the marine environment, resources and cultural heritage;
- □ Improved knowledge-based EU policies and directives on marine and maritime issues in the Mediterranean;
- Public awareness and understanding of relevance of a sustainably prosperous Mediterranean Sea for the surrounding countries and for Europe as a whole;
- New and qualified 'sea-based' scientists, professionals, technicians and entrepreneurs able to tackle complex ecological, economic and societal challenges in a holistic way.

BLUEMED Strategic R&I Agenda: implementation (b)

Ministers of 9 EU MS of the BLUEMED initiative signed the "Venice declaration" and agreed to implement the BLUEMED SRIA via national and regional R&I programmes.

A BLUEMED CSA aiming at implementing the SRIA in the whole is active (PT participates via Directorate General for maritime Policies)

Some EU MS are adopting BLUEMED SRIA for developing their national and regional R&I agendas. In Italy, BLUEMED SRIA was recently adopted in the "National Plan for Research" (PNR). It is also used as reference by some of the Italian Regions revising marine and maritime R&I agendas in the frame of their S3 strategies.

BLUEMED SRIA is quoted in the Union for Mediterranean (UfM) declaration and road-map. It is used as reference by the "EU Strategy for the Adriatic Ionian Region" (EUSAIR) and quoted by the Bologna Charter initiative (joined by 26 regions of the MED).

BLUEMED initiative: outcomes

Some **BLUEMED SRIA priorities** were **adopted by the EU commission**, **DG MARE and DG RTD**, and included in their R&I programmes:

European Commission DG MARE

Call for proposals: Blue Labs - innovative solutions for maritime challenges & Blue Careers in Europe (May 31, 2016). Blue Technology - transfer of innovative solutions to sea basin economies (Sept 2016)

https://ec.europa.eu/easme/en/call-proposals-blue-labs-innovative-solutions-maritime-challenges; https://ec.europa.eu/easme/en/call-proposals-blue-careers-europe

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European Commission DG RTD

Six BLUEMED R&I priorities were included in the 2016-2017 WP of Horizon 2020 SC2 with € 43 M.

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-

A Specific mention to BMI is performed in the draft scouping paper for 2018-2019 WP of Horizon 2020 SC2 **BLUEMED** *Research and Innovation initiative for Blue jobs and growth in the Mediterranean*

SC2 WP 2016-2017

2016: ~352.5 M€ 2017: ~390.0 M€

H2020 SC2, WP2016-2017

SFS – Sustainable Food Security – Resilient and Resource Efficient value chains

BG - Blue Growth – Demonstrating an Ocean of opportunities

RUR – Rural Renaissance – Fostering innovation and business opportunities

BE – Bio-based innovation for sustainable goods and services – Supporting the development of a European Bioeconomy 2016: **66M€** 2017: **62M€**

2016: **180.5**

2016: **82.0M€**

2017: 47.0M€

2016: **24M€** 2017: **30M€**

https://ec.europa.eu/programmes/horizon2020/en/draft-workprogrammes-2016-17

BG - Blue Growth topics, SC2 WP2016/17 Boosting Innovation for emerging Blue Growth activities

BG-01-2016: Large-scale algae biomass integrated biorefineries

BG-02-2016/2017: High value-added specialised vessel concepts enabling more efficient servicing of emerging coastal and offshore activities (IA, 8M, Feb 14, 2017)

BG-03-2016: Multi-use of the oceans' marine space, offshore and near-shore: compatibility, regulations, environmental and legal issues

BG-04-2017: Multi-use of the oceans marine space, offshore and near-shore: Enabling technologies (IA, 8M, Feb 14, 2017)

BG-05-2016: ERA-NET Cofund on marine technologies

Linking healthy oceans and seas with healthy people

BG-06-2017: Interaction between people, oceans and seas: a strategic approach towards healthcare and well-being (CSA, 2M, Feb 14, 2017)

BG-07-2017: Blue green innovation for clean coasts and seas (IA, 12M, Feb 14, 2017)

BG-08-2017: Innovative sustainable solutions for improving the safety and dietary properties of seafood (IA, 7M, Feb 14, 2017)

The Arctic Dimension

BG-09-2016: An integrated Arctic observation system

BG-10-2016: Impact of Arctic changes on the weather/climate of Northern Hemisphere

BG-11-2017: The effect of climate change on Arctic permafrost and its socio-economic impact, with a focus on coastal areas (RIA, 10M, Feb 14, 2017)

Valorising the Mediterranean Sea Basin

BG-12-2016: Towards an integrated Mediterranean Sea Observing System

BG-13-2016: Support to the BLUEMED Initiative: Coordination of marine and maritime research and innovation activities in the Mediterranean

RUR-02-2017: Coastal-rural interactions: Enhancing synergies between land and sea-based activities (RIA,5M, I stage Feb 14, 2017, II stage 13 Sept 2017)

Other Blue Growth relevant topics, WP2016/17

SFS-20-2017: Towards a science-based regionalisation of the Common Fisheries Policy (RIA,6M, I stage Feb 14, 2017, II stage 13 Sept 2017) SFS-21-2016/2017: Advancing basic biological knowledge and improving management tools for commercially important fish and other seafood species (RIA,5M, I stage Feb 14, 2017, II stage 13 Sept 2017)

SFS-22-2017: Smart fisheries technologies for an efficient, compliant and environmentally friendly fishing sector (IA,6M, I stage Feb 14, 2017, II stage 13 Sept 2017)

SFS-23-2016: Improving the technical performance of the Mediterranean
aquacultureSFS-24-2016: Reinforcing international cooperation on sustainable aquaculture
production with countries from South-East Asia

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Commission



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WESTERN MEDITERRANEAN

A process is underway to prepare a maritime strategy for the western Mediterranean and develop an action plan to implement this strategy (under 5+5 Dialogue and UfM);

BMI SRIA is overarching as to provide overall coherence and alignment of the West Med Strategy at the basin scale actions framework

All	Articles	Events	
How to achieve a better governance for the sea basin in the Western Mediterranean? Last collaborative lab of the "Building a West-Med Strategy" project with focus on Governance and means for a better implementation at sub regional basin level.			
🛗 Event date: 15	/03/2016 (All day)	Last update: 15/03/16	
Pour un transport maritime plus propre et plus sûr dans le cadre d'une planification des espaces maritimes Third collaborative lab of the "Building a West-Med Strategy" project with focus on Maritime highways for safer and cleaner seas, including integrated surveillance issues.			
🛗 Event date: 10	/03/2016 (All day)	Last update: 15/03/16	
Strengthening ma Second collaborative marine innovation, k Corridor).	arine and maritime innovation and know lab of the "Building a West-Med Strategy" p nowledge transfer, including emerging sector	wledge transfer roject with focus on Maritime and rs and biotechnologies (North-South	

🛗 Event date: 08/03/2016 (All day)

Last update: 15/03/16



Developing Authentic and Attractive Destinations across the West Mediterranean

First collaborative lab of the "Building a West-Med Strategy" project with focus on Sustainable coastal and maritime tourism including cruise and nautical transport (North-South Corridor).

Event date: 04/03/2016 (All day)

Last update: 15/03/16



Algarve University, Sept 2016

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Climate change mitigation and adaptation Disaster risk management

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BLUEMED Strategic R&I Agenda & EUSAIR PILLAR 1

Key enabling knowledge for the Mediterranean

- Mediterranean Sea ecosystems: services, resources, vulnerability and resilience to natural and anthropogenic pressures
- Mediterranean Sea dynamics: developing services in the filed of sustainable adaptation and to climate change and plans for mitigation;
- Hazards and protection of coastal areas in the Mediterranean

Key sectorial enablers in the Mediterranean

Innovative business based on marine bio-resources in the Mediterranean

- Ecosystem-based management of Mediterranean aquaculture and fisheries
- Sustainable tourism in the Mediterranean
- Maritime clusters in the Mediterranean
- Maritime Spatial Planning & Integrated Coastal Zone Management in the Mediterranean

Enabling technology and capacity creation for the Mediterranean

- Smart, greener maritime transport and facilities in the Mediterranean
- Observing systems and operational oceanography capacities in the Mediterranean
- Multi-purpose off-shore platforms in the Mediterranean
- Marine and costal cultural heritage in the Mediterranean: discovering, protecting and valuing

BLUEMED SRIA inputs for EUSAIR PILLAR 1 (a)

DEVELOP OPTIMAL FISHING STRATEGIES, TECHNOLOGIES AND PRACTICES

Develop optimized strategies, technologies and practices for sustainable fishing, taking into account the socio-economic and ecosystem considerations included in the Common Fishery Policy (CFP) and the General Fishery Commission for the Mediterranean (GFCM)

Adapt fishing gear, reduction of discards, by-catch and rof other impacts of fishing

Develop appropriate monitoring, assessment, management and governance regimes for sustainable small-scale and recreational fisheries

DEVELOP OPTIMAL AQUACULTURE STRATEGIES, TECHNOLOGIES AND PRACTICES

Adapt aquaculture activities (species and systems) and capacities in a changing environment

Develop new strategies, technologies and practices to ensure sustainability of aquaculture Promote the diversification of aquaculture and the use of multi-trophic marine farming systems

BLUEMED SRIA inputs for EUSAIR PILLAR 1 (b)

BIO-BASED INDUSTRY ON MARINE BIO-RESOURCES IN THE MEDITERRANEAN

Obtainment of **new or more robust marine micro-algae species**, **eukaryotic and prokaryotic microbial communities and strains** to be exploited in **biorefinery** schemes and **for greening sectors of the chemical industry**

Optimize cultivation and metabolic/production potential (omics techniques) of known and new marine microbial cultures as well as their **industrial up-scaling**

Integrated valorisation of by-products and waste of fishery and aquaculture

PROMOTING SUSTAINABLE EXPLOITATION OF BIOTIC AND ABIOTIC RESOURCES

Develop and implement management **plans** for **sustainable exploitation of coastal to deepsea biotic and abiotic resources**, including gas hydrates, minerals, molecules of industrial interest

Depict the deep sea, mapping the topography of seabed, characterizing the geomorphology and substrate types, identifying geo-habitats

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BLUEMED Strategic R&I Agenda & EUSAIR PILLAR 3

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BLUEMED SRIA inputs for EUSAIR PILLAR 3 (a)

UNDERSTANDING THE FUNCTIONING OF THE MEDITERRANEAN SEA ECOSYSTEM

Assessment of inputs from atmosphere-land-sea and anthropogenic pressures and of the risks and impacts on both marine and costal ecosystems, and human health and wellbeing

Identify the origin of **invasive/alien species and routes of invasions**, environmental conditions conducive for invasions and major effects on local habitats

Develop innovative devices and approaches for **limiting coastal erosion and pollution** via a integrated synergy between science, industry and policy makers and foster joint initiatives with European marine regions

Improve the knowledge on land-sea nexus and develop coastal ecological engineering solutions and measures to reach a 'good environmental status"

Use integrated decision tools for selecting appropriate sites for off-shore installations, fulfilling energy and environmental requirements

BLUEMED SRIA inputs for EUSAIR PILLAR 3 (b)

CLEANING THE MEDITERRANEAN SEA

Implement coordination/cooperation schemes and comparable risk assessment of the effects of multiple anthropic pressures at different depths, including deep sea areas; comply with regional conventions and the Marine Strategy Framework Directive (MSFD)

Identify and measure chemical compounds and other sources of pollution (marine litter, nanomaterials etc) **in different marine matrices** and their **impact on marine organisms**; develop early warning tools to detect pollutants

Develop and test (bio)remediation actions in different areas/places, including possible dispose, re-use and recycling of hazardous materials collected.

UNDERSTANDING AND FORECASTING THE MEDITERRANEAN SEA DYNAMICS

Mediterranean environmental conditions alongProvide numerical modelling, forecasting, indicators and trends definition in the with long-term monitoring

Implement **downscaling models of climate change** for the Mediterranean Sea and subbasins; **assess the** (global) **impacts on marine ecosystems and their resources** from regional to local scales

BLUEMED SRIA inputs for EUSAIR PILLAR 3 (c)

PREPARING TO CLIMATE CHANGE

Make a comprehensive assessment of climate related risks in the Mediterranean Sea region, including extreme climate events in a changing climate, sea level rise, flooding and weather extreme events

Assess the climate change **risk on the ecosystems and human environment in the coastal zone** and **in the deep sea** developing climate risk monitoring programmes and services. Develop, enhance and deliver user-friendly tools for disseminating climate information related to Mediterranean atmosphere, coastal and deep ocean areas

REDUCING RISK DISASTERS

Develop adapted sampling strategies; better **assess marine geo-hazards**, from paleo records and from analysis and characterization of active faults. **Implement** high resolution swath bathymetry mapping; reveal detailed morphology of the seafloor and large scale and local seismic profiling surveys;

Develop operational platforms and decision matrix for tackling destructive tsunami events generated by different sources, e.g. seismicity, volcanoes, landslides, atmosphere

Implement coordinated methods and approach to achieve a dedicated science-to-policy network on hazards in the Mediterranean

BLUEMED SRIA inputs for EUSAIR PILLAR 3 (d)

TOWARDS AN OBSERVING SYSTEM OF SYSTEMS

Develop **an integrated Mediterranean observing system**, **based on existing European networks and consortia**, including ESFRI, **and national infrastructures**, in line with the overall European contribution to global observing systems

Maintain updated data/information on erosion phenomena and coastal risks harmonizing and expanding the coastline monitoring systems at basin scale R&I activities

Develop **new** concepts of **specific smart robotic systems and devices for exploring and working also on deep seafloor** and **new technologies** and systems enabling the **increase of the spatial and temporal resolution and observation parameters at the coastal region** (both using in-situ/remote tools)

Develop Unmanned Autonomous Vehicles, and related infrastructures, capable to extend the area - on sea surface and underwater - for different purposes operations, e.g. monitoring of illegal activities, supporting search and rescue activities, assisting Civil Protection during response to calamities, supporting offshore economic activities

Develop common methodologies and tools (novel sensors, to assess the impacts of human activities) **to implement the Marine Strategy Framework Directive (MSFD) in shared waters**, enhancing coordination and cooperation among Member States **to achieve the Good Environmental Status (GES)**



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The BLUEMED initiative



BLUEMED Vision & SRIA available at: goo.gl/ZbJTWH

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