

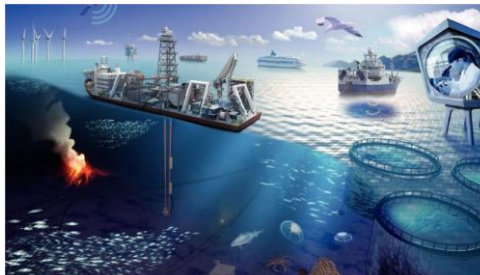


HELLENIC REPUBLIC  
MINISTRY OF DEVELOPMENT AND INVESTMENTS  
GENERAL SECRETARIAT FOR PUBLIC INVESTMENTS-NSRF  
NATIONAL COORDINATION AUTHORITY

# Monitoring and Evaluation of the European Strategy for the Adriatic-Ionian Region (EUSAIR)

## Pillar 1 “Blue Growth”

Activity T.3.1 Building the Knowledge Base to the four Strategy Pillars  
Deliverable D.T.3.1.1



Pillar 1 “Blue Growth”-related study  
“Ideal EUSAIR” study, Final Report



Athens, Greece, May 2021



This document was requested by the Ministry of Development and Investments (Greece).

## **AUTHORS**

LKN ANALYSIS Ltd: Michalis NIKITARIDIS, Victoria CHORAFI, Dr. George TRIANTAPFYLLIDIS, Michalis SOLOMOS

University of the Aegean: Professor Maria LEKAKOU, Professor Nikitas NIKITAKOS, Dr. Evangelia STEFANIDAKI, Dr. Afrokomi STEFANAKOU, Ioannis KATSOUNIS (PhD candidate)

Language revision: Victoria CHORAFI

## **LINGUISTIC VERSIONS**

Original: EN

**Please use the following reference to cite this study:** Nikitaridis, M, Chorafa, V, Triantapfyllidis, D, Lekakou, M, Nikitakos, N, Stefanidaki, E, Stefanakou, A, Katsounis, I, Solomos, M, 2021, *EUSAIR Pillar 1 Blue Growth - "Facilitating and fostering the design and implementation of EUSAIR Flagship actions and projects in the Adriatic - Ionian macro-region" (Acronym: Ideal EUSAIR)*, Ministry of Development and Investments, Athens, Greece.

**Please use the following reference for in-text citations:** Nikitaridis et al. (2021)

## **DISCLAIMER**

The opinions expressed in this document are the sole responsibility of the authors and do not necessarily represent the official position of the Ministry of Development and Investments (Greece).

Reproduction and translation for non-commercial purposes are authorized, provided the source is acknowledged and the publisher is given prior notice and sent a copy.

## Table of Contents

EXECUTIVE SUMMARY .....	6
INTRODUCTION .....	15
1. Background.....	18
1.1. The Adriatic – Ionian macro-region.....	18
1.2. The European Union Strategy for the Adriatic - Ionian macro-region (EUSAIR)..	19
1.2.1. EUSAIR Pillar 1 – Blue Growth .....	21
1.3. The Blue Economy in the Adriatic – Ionian macro-region.....	23
1.3.1. State of play of the Blue Economy in the A-I region .....	24
1.3.2. Pillar 1 “Blue Growth” relevant projects in the A-I region.....	31
2. AIM AND OBJECTIVES OF THE STUDY.....	45
2.1. Aim and objectives of the study .....	45
2.2. Methodology.....	45
2.2.1. Task 1 - Mapping and Networking .....	47
2.2.2. Task 2 - Identifying network potential, categories of ideas and eligible actions per topic.....	47
2.2.3. Task 3 - Focus Groups.....	51
2.2.4. Task 4 - Roadmap and Final Report.....	52
3. MAPPING OF EUSAIR PILLAR 1 “BLUE GROWTH” STAKEHOLDERS .....	53
3.1. Blue Technologies stakeholders .....	54
3.2. Fisheries and Aquaculture stakeholders.....	55
3.3. Maritime and Marine Governance and Services stakeholders .....	56
4. ANALYSIS OF THE SURVEY RESULTS .....	57
4.1. Identity of the survey .....	57
4.2. Blue Technologies.....	60
4.2.1. Proposed priorities by the stakeholders in the Blue Technologies sector for the programming period 2021-27 .....	60
4.2.2. SWOT Analysis .....	61
4.2.3. Proposed project areas by the stakeholders in the Blue Technologies sector for the programming period 2021-2027 .....	69
4.3. Fisheries and Aquaculture .....	71
4.3.1. Proposed priorities by the stakeholders in the Fisheries and Aquaculture sector for the programming period 2021-2027 .....	71
4.3.2. SWOT Analysis .....	73

4.3.3.	Proposed project areas by the stakeholders in the Fisheries and Aquaculture sector for the programming period 2021-2027 .....	92
4.4.	Maritime and Marine Governance and Services.....	95
4.4.1.	Proposed priorities by the stakeholders in the Maritime and Marine Governance and Services sector for the programming period 2021-2027 .....	95
4.4.2.	SWOT Analysis .....	96
4.4.3.	Proposed project areas by the stakeholders in the Maritime and Marine Governance and Services sector for the programming period 2021-2027 .....	102
5.	KEY POLICY RECOMMENDATIONS AND PILLAR 1 PROPOSED PROJECT IDEAS FOR THE PROGRAMMING PERIOD 2021-2027 .....	105
5.1.	The European Blue Growth Strategy .....	105
5.2.	Best practices in the Blue Growth sectors .....	110
5.3.	The Blue Growth dimension in the Programming Period 2021-2027 .....	124
5.3.1.	The Cohesion policy in 2021-2027 .....	124
5.3.2.	The European Maritime, Fisheries and Aquaculture Fund .....	131
5.3.3.	Other EU programmes and funding mechanisms.....	135
5.3.4.	The Economic and Investment Plan of the Western Balkans .....	138
5.4.	EUSAIR Blue Growth Flagships 2021-2027 .....	144
5.5.	Key policy recommendations for the programming period 2021-2027 .....	145
5.5.1.	Blue Technologies.....	145
5.5.2.	Fisheries and Aquaculture .....	148
5.5.3.	Maritime and Marine Governance and Services.....	154
5.6.	Proposed Project Ideas .....	158
5.6.1.	Blue Technologies.....	160
5.6.2.	Fisheries and Aquaculture .....	172
5.6.3.	Maritime and Marine Governance and Services.....	183
5.7.	Roadmap.....	189
5.7.1.	Embedding EUSAIR priorities and flagships in the 2021-2027 programmes ... ..	190
5.7.2.	Supporting the project generation process by the Thematic Steering Group “Blue Growth” .....	194
5.7.3.	Contributing to the visibility of the Ideal EUSAIR outcomes .....	196
6.	IDEAL EUSAIR STUDY: CONCLUSIONS & RECOMMENDATIONS .....	199
ANNEX	.....	205

## **Table of Figures**

Figure 1. Mapping of Blue Growth-related stakeholders in the Adriatic-Ionian macro-region (per country & quadruple helix approach) .....	53
Figure 2. Mapping of Topic 1 – Blue Technologies stakeholders (per country & quadruple helix approach) .....	54
Figure 3. Mapping of Topic 2 – Fisheries and Aquaculture stakeholders (per country & quadruple helix approach) .....	54
Figure 4. Mapping of Topic 3 – Maritime and Marine Governance and Services stakeholders (per country & quadruple helix approach) .....	54
Figure 5. Response rate per Topic .....	57
Figure 6. EUSAIR Survey Data .....	58
Figure 7. Categorization of respondents for all Topics .....	58
Figure 8. Categorization of respondents – Topic 1 .....	59
Figure 9. Categorization of respondents – Topic 2 .....	59
Figure 10. Categorization of respondents – Topic 3 .....	60
Figure 11. Proposed priorities by the stakeholders in the Blue Technologies sector for the programming period 2021-2027 .....	61
Figure 12. Proposed Project Areas by the stakeholders in the Blue Technologies sector for the programming period 2021-2027 .....	70
Figure 13. Proposed priorities by the stakeholders in the Fisheries sector for the programming period 2021-2027 .....	72
Figure 14. Proposed priorities by the stakeholders in the Aquaculture sector for the programming period 2021-2027 .....	72
Figure 15. Proposed Project Areas by the stakeholders in the Fisheries sector for the programming period 2021-2027 .....	92
Figure 16. Analysis per stakeholder of the importance of diversification activities (fishtourism and ichthyotourism) .....	93
Figure 17. Analysis per stakeholder of the importance of restoration actions to enhance habitat features .....	94
Figure 18. Proposed Project Areas in the Aquaculture sector and their importance .....	95
Figure 19. Proposed priorities by the stakeholders in the Maritime and Marine Governance and Services sector in the programming period 2021-2027 .....	96
Figure 20. Proposed Project Areas by the stakeholders in the Maritime and Marine Governance and Services sector for the programming period 2021-2027 .....	102
Figure 21. Spatial subdivision of the Jabuka/Pomo Pit FRA between the three areas (A, B, C) each with different types of restrictions based on GFCM Recommendation. Source: GFCM (2017) .....	116
Figure 22. The Jabuka Pomo Pit FRA in Adriatic is a success story to replicate: surveys showed impressive increase of biomass for overfished hake & nephrops, while fishers saw increased catches. Source: Oceana.....	117

## **Abbreviations**

AIM	Adriatic-Ionian Macro-region
AZA	Allocated Zones for Aquaculture
CBC	Cross Border Cooperation
CEF	Connecting Europe Facility
CFP	Common Fisheries Policy
CLLD	Community Led Local Development
CPMR	Conference of the Peripheral Maritime Regions
EASME	Executive Agency for Small and Medium-sized Enterprises
EFSI	European Fund for Strategic Investments
EGTC	European Groupings of Territorial Cooperation
EIB	European Investment Bank
EIC	European Innovation Council
EIF	European Investment Fund
EIP	Economic & Investment Plan
EMFF	European Maritime and Fisheries Fund
EMFAF	European Maritime, Fisheries and Aquaculture Fund
ESF+	European Social Fund +
ESIF	European Structural and Investment Funds
ESPON	European Spatial Planning Observation Network
ERDF	European Regional Development Fund
ETC	European Territorial Cooperation
EU	European Union
EUSAIR	European Strategy for the Adriatic-Ionian Region
EYSSA	Special Service for Strategy, Planning and Evaluation (Greece)
FCD	Fish Cradle Device
FG	Focus Group
FLAG	Fisheries Local Action Group
FPC	Fish Protein Concentrate
FP	Facility Point
FRA	Fisheries Restricted Areas

GB	Governing Board
GDP	Gross Domestic Product
GFCM	General Fisheries Commission for the Mediterranean
ICZM	International Coastal Zone Management
IMP	Integrated Maritime Policy
IMTA	Integrated Multitrophic Aquaculture
IPA	Instrument for Pre-Accession Assistance
IUU	Illegal, Unreported, Unregulated (Fishing)
MEA	Maritime Economic Activity
M&E	Monitoring and Evaluation
MPA	Marine Protected Area
MS	Member State
MSP	Maritime Spatial Planning
MUP	Multi Use Platform
NGO	Non-Governmental Organisation
R&D	Research & Development
SDG	Sustainable Development Goal
SME	Small & Medium Enterprise
SSF	Small Scale Fisheries
SWOT	Strengths, Weaknesses, Opportunities, Threats
TSG	Thematic Steering Group
UfM	Union for the Mediterranean
UN	United Nations
VME	Vulnerable Marine Ecosystem

## **EXECUTIVE SUMMARY**

The study “Facilitating and fostering the design and implementation of EUSAIR Flagship actions and projects in the Adriatic - Ionian macro-region” (Acronym: Ideal EUSAIR) has been conducted by the EUSAIR Pillar 1 Monitoring and Evaluation Consultant as the Pillar 1 “Blue Growth”-related study according to the contract signed between the consortium comprising LKN ANALYSIS Ltd – University of the Aegean and the Special Service for Strategy, Planning and Evaluation (EYSSA, Ministry of Development and Investments, Greece).

The topic of the study was selected in close collaboration with the EUSAIR Thematic Steering Group 1 “Blue Growth” and the EUSAIR Facility Point Greece, while the 11<sup>th</sup> TSG 1 meeting (15 July, 2020) discussed and agreed the subject and the methodology of the study, following a detailed presentation by the Pillar 1 M&E Consultant thematic experts.

### **AIM AND OBJECTIVES OF THE STUDY**

The **aim** of the Ideal EUSAIR study is to create a document that includes the European Union’s major political and economic commitments and to assist the specification of the next programming period of Pillar 1 Flagships in the Adriatic - Ionian macro-region. The overall objective of the study is to identify important information gaps, needs and opportunities to facilitate and foster the design and implementation of EUSAIR Flagship actions and projects in the Adriatic - Ionian macro-region. The **specific objectives** include:

1. To assist the EU MS mandated institutions to the design of the new programming period 2021-2027 by adopting proposals, ideas and proposed projects aligned to meet the flagship priorities and overall objectives.
2. To assist the EUSAIR MS to fine-tune actions and to specify the practical procedures to design, launch and activate projects that will safeguard the implementation of the flagships in Pillar 1.
3. To assist the macro-region MS to consider streamlining their national Pillar 1 EUSAIR strategies in order to render them more specific to their priorities, needs and vision.

### **METHODOLOGY AND TASKS OF THE STUDY**

The **methodological approach** included a combination of tools such as desk research (literature review) and fieldwork including the organisation of an online survey and thematic focus groups.



In this context, the study contains of four tasks: **Task 1**: Mapping and Networking; **Task 2**: Identifying network potential, categories of ideas and eligible actions per topic (Task 2.1: Blue Technologies, Task 2.2: Fisheries and Aquaculture, Task 2.3: Marine and Maritime Governance and Services); **Task 3**: Focus groups; **Task 4**: Roadmap and Final Report.

## **MAPPING THE EUSAIR PILLAR 1 “BLUE GROWTH” STAKEHOLDERS**

According to the desk research carried out, there are currently 579 relevant stakeholders operating in the Blue Growth sector in the Adriatic – Ionian macro-region. Those stakeholders can be classified according to the quadruple helix model, as follows: Government (148), Academia (250), Industry (99), and Civil Society (82).

The majority of stakeholders come from the Academia (Universities and Research & Technological Institutes, 43%), followed by the Public Authorities (25.5%), while the Civil Society organisations have the lowest representation (14%). However, it should be mentioned that the numbers of stakeholders coming from the Industry and the Civil Society may be underestimated, as there were difficulties in identifying all the relevant stakeholders in those fields (particularly in the Industry) in the EUSAIR countries, especially in the non-EU members.

## **ONLINE SURVEY AND FOCUS GROUPS**

In the framework of the study an online survey was carried out, through **526 questionnaires** sent via e-mail to the EUSAIR stakeholders identified in Task 1. More specifically:

- Topic 1 (Blue Technologies): 213 questionnaires;
- Topic 2 (Fisheries and Aquaculture): 238 questionnaires;
- Topic 3 (Marine and Maritime Governance and Services): 75 questionnaires.

The total number of responses amounts to **77**, with a **14.6%** average response rate for all topics, which under the current circumstances and taking into account the complexity of the various type of stakeholders and the COVID-19 restrictions, could be considered satisfactory. The highest response rate is identified in Topic 3 - Maritime and Marine Governance and Services (26.7%), followed by Topic 2 – Fisheries and Aquaculture (16.0%), while Topic 1 – Blue Technologies presents the lowest response rate (8.9%). The vast majority of responses come mainly from the EU Member States (90%) and especially Greece & Italy (78%), while the non-EU countries provided the 10% of the total responses.

The study included the organisation of four **focus groups**, held in all three Pillar 1 topics (two separate focus groups were organised for the sectors of Fisheries and Aquaculture). Both the survey and the focus groups allow a deep consideration of the current situation of the macro-region regarding the specific fields and leads to conclusions regarding

specific policy recommendations, prioritized policy areas and indicative project ideas that could constitute a basis for project generation in the new programming period.

## PROPOSED PRIORITIES AND AREAS FOR FUTURE PROJECT DEVELOPMENT

According to the survey results, the main **priorities** for the **Blue Technologies** sector, in the programming period 2021-2027, are the facilitation of an easier *access to finance and promotion of the creation of start-ups*, and the *increase of networking between researchers, SMEs and clusters*.

The vast majority of the participants in the survey stressed that the **main areas for project implementation** in the sector must be *the development of novel eco-friendly products that serve circular economy, the development of educational and training programs* to support the development of skilled human capital on Blue Technologies, *the promotion of blue skills, the reinforcement of networking, knowledge sharing & creation of databanks, the development of a “cloud environment”*, for facilitating the matching between researchers and institutes and companies, and for setting up a scheme for supporting researcher mobility and *the development of innovative eco-friendly solutions for electricity generation from the sea waves, currents, thermal energy of the sea, wind, etc.* for coastal and island regions.

The **Fisheries sector** must focus on the **priority** of *better management and sustainable exploitation of fish stocks along with compliance & implementation of measures to combat IUU practices*, while the *Utilization of Unwanted and Unavoidable catches and discards* is, also, considered an important priority. The replies of the survey revealed that *combining fisheries with tourism activities* is important, whereas the combination of fisheries with tourism activities and the valorisation of Unwanted and Unavoidable catches and discards ranked lower as suggested priorities for the sector.

The *development of a strategy for small scale fisheries* is considered an important **area for project implementation** by the total of the participants in the survey. *Actions to improve traceability, certification, harmonization of legislation and plans to improve professional skills of fishermen. Development of fishtourism and ichthyotourism (diversification activities)* are also considered important areas for project development in the Fisheries sector.

Accordingly, **important priorities** for the **Aquaculture sector** are *the creation of new jobs, the improvement of the environmental footprint of aquaculture and the compliance of the non-EU countries with EU Acquis, and the harmonization of aquaculture standards* follows. The survey underlines as important **project implementation areas** *the actions to improve the quality of the final product and the traceability, the harmonization of legislation, the actions to promote the industry and improve of the image of aquaculture products and the actions to improve skills for the aquaculture sector*.

The main **priorities** for **Maritime and Marine Governance and Services** include *enabling the sustainable Blue Growth development of coastal and island communities, improvement of the governance of maritime space and creation of appropriate tools and services to improve the management capacity of competent authorities, strengthening networks establishment of academics, training organizations and professional organizations of maritime sectors in macroregional level and improvement of skills and career development in blue economy.*

Based on the participants' opinions the main **project implementation areas** identified are *the development of climate change adaptation plans for coastal and island regions, the development of circular economy projects to ports and coastal and island regions, the improvement and clarification of the legal framework for Marine Protected Areas (MPAs) and the implementation of the new Directive on Maritime Spatial Planning.*

## KEY POLICY RECOMMENDATIONS

The survey results, the discussions that have taken place in the Focus Groups, allow drafting brief **key policy recommendations**, which could be used in order to provide guidance to Managing Authorities and other bodies involved in the programming of the programming period 2021-2027. Those recommendations summarize the main directions for the approval under the new programmes of projects relevant to the EUSAIR priorities. In addition, they include a list of indicative projects, or group of projects which could be compatible with the EUSAIR objectives for each one of the Pillar 1 priorities approved as Flagships and Actions by the EUSAIR Governing Board.

For the sector of **Blue Technologies** in the programming period 2021-2027 interventions related to the strengthening of quadruple helix ties in the fields of marine technologies and blue bio-technologies can be financed, aiming at:

- Advancing innovation, business development and business adaptation in blue bio-economy
- Facilitating the “brain circulation” between universities, institutes and companies (as a precondition for the development of macro-regional cooperation in the field of blue technologies)
- Strengthening networking and creating macro-regional clusters especially quadruple helix, while encouraging the internationalization of small and medium-sized enterprises (SMEs).

In order to boost Blue Technologies in the AI macro-region, research and development (R&D), and innovation platforms in areas such as green sea mobility, deep sea resources (including the development of unmanned marine vehicles) biosecurity and blue bio-technologies will be developed.

Priorities must also be adopted for easier access to finance and promotion of the creation of start-ups and spin offs for the development and testing of prototypes or ideas as well as for the exploitation of scientific results. The prioritization and adoption of Blue

Technologies by SMEs, the development of skilled human capital and knowledge transfer are promoted as key factors for innovation and sustainable Blue Growth.

The **Fisheries sector**, in the new programming period, has to deal with the macro-regional challenge of better cooperation across the Adriatic-Ionian Sea basin, which should trigger a virtuous process of increasing the competitiveness of the coastal communities. Strategic goals to be served are:

- Creation of new jobs, the harmonization of standards as well as the compliance of non-EU countries with EU Acquis are of strategic importance.
- Combining fisheries with tourism activities (Pillar 4) should be exploited and further developed.

Overall, the projects to be implemented aim at strengthening fisheries in the macro-region through:

- Better management and sustainable exploitation of fish stocks.
- Improvement of data collection and fish stock assessment.
- Improved fisheries management & harmonization with EU regulations & international organizations.
- Compliance & implementation of measures to combat illegal, unreported, unregulated fisheries and elimination of destructive fishing practices.
- Utilization of Unwanted and Unavoidable catches and discards.
- Plans to improve professional skills of fishermen.

For the **Aquaculture sector**, the better cooperation across the Adriatic-Ionian Sea basin should trigger a virtuous process of increasing the competitiveness of the coastal communities. The strategic goal for Aquaculture is the creation of new jobs, while the harmonization of standards as well as the compliance of non-EU countries with EU Acquis are also of strategic importance. Overall, the projects proposed aim at strengthening the aquaculture sector in the macro-region through:

- Improvement of Administration (including data collection), Technology, Marketing and Trade.
- Compliance & implementation of measures for sustainable and resource efficient aquaculture with improved environmental footprint.
- Utilization of Unwanted and Unavoidable catches and discards.
- Plans to improve professional skills of employees in the aquaculture sector.

Regarding the **Maritime and Marine Governance and Services**, the EUSAIR priorities can be served through:

- The development of appropriate and operational transnational cooperation networks to improve the sustainable management of coastal and insular areas,
- The creation of databases for effective policy-making and the implementation of the Maritime Spatial Planning Directive) as well as the Maritime Strategy Framework Directive,

- The creation of programmes for the cultivation of the necessary skills
- The improvement of career prospects in the fields of the Blue Economy, with particular emphasis on the maritime profession.

Interventions could be adopted supporting the improvement of the management capacity of the bodies designing and implementing projects, the establishment of a monitoring system to support local bodies through the development of appropriate indicators, tools and consultation mechanisms, as well as the formulation of education and training programs for blue jobs.

## **FUNDING BLUE GROWTH IN THE PROGRAMMING PERIOD 2021-2027**

The **EU Blue Growth Strategy** comprises a dynamically evolved background for the implementation of the EUSAIR Pillar 1, while the Cohesion Policy of 2021-2027 provides the necessary financial framework for funding the macro-regional projects. As in the programming period 2014-2020, the implementation of projects serving the EUSAIR objectives in Blue Growth is going to be financed mainly by the **European Structural and Investment Funds and other EU funding mechanisms**, while the funding mechanisms in **IPA countries** will provide additional support for the implementation of projects engaging all countries members of the EUSAIR and enabling the achievement of macro-regional effects and impacts.

As the new Cohesion Policy is structured on the basis of five Policy Objectives, it covers all fields of interventions of Blue Growth in the Adriatic-Ionian macro-region. EUSAIR Pillar 1 “Blue Growth” interventions in the new programming period will be implemented mainly under Policy Objectives 1, 2,4 and 5. The first Policy Objective of the new Cohesion Policy provides the framework for funding projects in the topic of Blue Technologies, while under the CBC and Transnational programmes macro-regional projects can be approved serving the EUSAIR priorities in this specific topic. The same way projects on Marine and Maritime Governance and Services could be funded from ERDF or even ESF+ (e.g. projects on maritime skills development), approved under regional operational programmes, national operational programmes or programmes under the goal of Territorial Cooperation. As regards ESF+, projects in coastal regions may boost training and education in the marine and maritime sectors.

In addition, the 6th generation of INTERREG programmes will support cooperation between regions, citizens and economic stakeholders over their respective land and maritime borders. The new legislation will also cover the cooperation between regions at transnational level in the framework of the Macro-regional and Sea basin Strategies: Baltic, **Ionian/Adriatic** and Black seas, Danube and Alps.

Furthermore, the new **European Maritime, Fisheries and Aquaculture Fund (EMFAF)** will have an important role in the EUSAIR Pillar 1 implementation, due to its direct relevance with the topic of Fisheries and Aquaculture. The Fund continues to support the European fisheries sector towards more sustainable fishing practices, with a particular

focus on supporting small-scale fishermen. It will also help unleash the growth potential of a sustainable Blue Economy towards a more prosperous future for coastal communities. For the first time, in the programming period 2021-2027, it will contribute to strengthening international ocean governance for safer, cleaner, more secure, and sustainably managed seas and oceans. Finally, the Commission is reinforcing the environmental impact of the Fund with a focus on protecting marine ecosystems and an expected contribution of 30% of its budget to climate change mitigation and adaptation, in line with the commitments agreed under the Paris Agreement.

More European programmes and directly managed by the Commission calls also provide opportunities for funding Blue Growth-related projects in the AI macro-region in the new period. Among them, Horizon Europe, the research and innovation framework programme running in 2021-2027, could provide funding for a wide range of similar interventions. Under the mission area 4 “Healthy oceans, seas, coastal and inland waters”, which is closely related to the EUSAIR Pillar 1 “Blue Growth” and Pillar 3 “Environmental Quality”, the programme will provide a powerful tool to raise awareness among citizens of the importance of healthy oceans, seas, coastal and inland waters, and help develop solutions on a range of issues. These include systemic solutions for the prevention, reduction, mitigation and removal of marine pollution, including plastics; transition to a circular and Blue Economy; adaption to and mitigation of pollution and climate change in the ocean; sustainable use and management of ocean resources; development of new materials including biodegradable plastic substitutes, new feed and food; urban, coastal and maritime spatial planning; ocean governance and ocean economics applied to maritime activities.

## PROPOSED PROJECT IDEAS

The Ideal EUSAIR study identifies a total of **30 potential project ideas**, 17 in the topic of Blue Technologies, 7 in Fisheries and Aquaculture and 6 in Maritime and Marine Governance and Services. Among them two cross-pillar project ideas are presented in the topic of Blue Technologies. Each idea includes a brief presentation of the potential project and its significance, its relevance with the Pillar 1 Flagships as well as the potential stakeholders and sources for funding. All projects presented were discussed in the respective focus groups organised in the framework of the Ideal EUSAIR study. The list of the project ideas comprises a pool of potential Blue Growth projects for the new programming period, providing the TSG 1 the opportunity for project selection according to its priorities and following the essential project production processes.

A/A	Project Idea	Relevant Flagship (s)
<b>BLUE TECHNOLOGIES</b>		
1	Crowdfunding for Enterprises in Blue Technologies	One-stop-shops' operation for SMEs support
2	Blue Innovation Voucher Mechanism	Promotion of blue skills, reinforcement of networking, knowledge sharing & creation of databanks, enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries, allowing development of novel eco-friendly end products that

		serve circular economy
3	Seed Funds to Support Technology Transfer from Innovators to Traditional Businesses in the Field of New Materials for Green Boatbuilding	Research on Blue Technologies and prioritization of its adoption by SMEs in the macro-region
4	Establishment of a Network of Blue Career Centers in the EUSAIR Countries	Promotion of Blue skills
5	Development of international Master BB Program in the macro-region	Promotion of Blue skills
6	Capitalization of previous project results in the sector of blue technologies	Research on Blue Technologies
7	Production of electricity from Renewable Energy Sources (RES) in shipyards	Research on Blue Technologies
8	Development of hybrid installations for marine and offshore wind energy combined with aquaculture, fish-farming, etc.	Research on Blue Technologies
9	Development of solutions to decarbonize all the maritime mobility activities	Development of solutions to decarbonize (fishing) fleets
10	Creating an Adriatic and Ionian innovation community for interregional cooperation	Encouragement and creation of clustering, especially in quadruple helix
11	Using Artificial Intelligence-AI and Big Data in marine technologies	Research on Blue Technologies
12	Production of new anti-bio fouling compounds leading to a lower energy consumption in the shipping	Research on Blue Technologies
13	Creation of Circular Economy Action Plans	Allowing development of novel eco-friendly end products that serve circular economy
14	Use of Aquaculture Wastewater for Phytoplankton Culture.	Allowing development of novel eco-friendly end products that serve circular economy.
15	Seaweed Cultivation in Integrated Multi-Trophic Aquaculture	Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries
16	Cross Pillar Project Idea (Pillar 1 “Blue Growth, Pillar 3: Environmental Quality): Restoration actions for environmental restoration and BB applications	Research on Blue Technologies
17	Cross Pillar Project Idea (Pillar 1 “Blue Growth, Pillar 3: Environmental Quality): Sophisticated systems for pollution monitoring	Research on Blue Technologies
<b>FISHERIES AND AQUACULTURE</b>		
18	Development of a quality assurance standard for fish traded in Greek fish landing sites	Trade: refers to facilitation of trade of fisheries products, traceability, certification”
19	Actions to diversify income of fishermen (fishtourism) and improve the status of marine ecosystems, targeting actions to remove plastics and prevent ghost gears	Promoting sustainability, diversification and competitiveness in the fisheries sector
20	Actions for environmental restoration of marine ecosystems	Research on Blue Technologies Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and in-situ monitoring of their efficiency
21	Correlating biotic and abiotic factors for the development of a prognostic model of disease outbreaks in aquaculture fish farms	Technology: Methodological and technical issues related to farming. Ichthyopathology and treatment are of high priority and exchange of information is vital
22	Introduction of a centralized database of genetic and other biological data on fish stocks and regular genetic monitoring of all certified fish farms	Technology: Methodological and technical issues related to farming. Nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital
23	Development of a novel IoT environmental monitoring system for use in Allocated Zones of Aquaculture	Technology: Methodological and technical issues related to farming
24	Identification of biomarkers for early detection	Technology: Methodological and technical issues

	of dietary anti-nutritional factors affecting the growth, health and welfare of European seabass <i>Dicentrarchus labrax</i>	related to farming. Nutrition, is of high priority and exchange of information is vital
<b>MARINE AND MARITIME GOVERNANCE AND SERVICES</b>		
25	Novel devices to prevent marine litter to enter in the sea and ways to process marine litter	Trans-regional cooperation between community-led local development (CLLD) strategies for actions to combat marine litter pollution.
26	Innovation Lab for insular Blue Growth	Creation of start-ups and local employment and promotion of partnership working, improve the levels of skills and expertise for the working manpower in maritime sector
27	Development of a shared data system at sea basin level	Governance of maritime space for a sustainable and transparent use of maritime and marine resources
28	Development of a common framework for implementing circular economy projects in Blue Growth sectors	Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions
29	Common guidelines and tools for climate adaptation and SDGs	Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions
30	Maritime surveillance	Governance of maritime space for a sustainable transparent use of maritime and marine resources



## **INTRODUCTION**

The project “EUSAIR Monitoring and Evaluation Consultant” was assigned to the consortium comprising LKN Analysis Ltd and the University of the Aegean, following an international call for tenders, by the Special Service for Strategy, Planning and Evaluation (EYSSA) within the Ministry for Development and Investments. The relevant contract was signed on September 11<sup>th</sup>, 2019. On March 10<sup>th</sup> 2020 the complementary contract was signed by the two parts.

The scope and objectives of the project include:

- i) Monitoring and evaluation of the progress achieved in Pillar/ Thematic Steering Group 1 (Blue Growth – TSG 1), and
- ii) Coordinating role among the TSG Experts of the other EUSAIR Pillars, in particular:
  - Coordination of TSG Experts for the development of the Knowledge Base for the other Pillars;
  - Coordination of TSG Experts for the development of the EUSAIR monitoring and evaluation framework;
  - Coordination of TSG Experts for the organisation of macro-regional and national events in EUSAIR countries;

The project includes three (3) main activities, namely:

Activity 1: Building the Knowledge Base relevant to Pillar 1 (Blue Growth);

Activity 2: Establishing the EUSAIR Monitoring and Evaluation Framework;

Activity 3: Capacity building for public authorities / administrations.

This report is the final deliverable 2.1 of the M&E Consultant Project referring to the Pillar-related study. The theme of the study was selected in close collaboration with the TSG 1 “Blue Growth” and the EUSAIR Facility Point Greece, according to the terms of the contract. After a period of consultation among all involved parts, the theme of the study was decided to be: **“Facilitating and fostering the design and implementation of EUSAIR flagship actions and projects in the Adriatic - Ionian macro-region” (Ideal EUSAIR)**. The 11<sup>th</sup> TSG 1 meeting (15 July, 2020) discussed and agreed on the subject and methodology of the study, after a detailed presentation by the Pillar 1 M&E Consultant thematic experts. The aim of the Ideal EUSAIR study is to create a document that includes the European Union’s major political and economic commitments and to

assist the specification of the next programming period of Pillar 1 Flagships in the Adriatic - Ionian macro-region.

The study comprises six chapters. In particular:

The *first chapter* includes a short introduction to the features of the Adriatic – Ionian region, the challenges and opportunities the region is facing and the state of play as regards the performance of the Blue Economy sectors in the macro-region. The analysis is followed by a review on the Blue Growth relevant projects implemented under a variety of funding sources in the EU and IPA countries.

The *second chapter* presents the methodological approach followed, including the objectives of the study, the main tasks to be carried out and the expected outputs.

The *third chapter* presents the mapping of the identified Blue Growth-related stakeholders in the EUSAIR countries.

The *fourth chapter* contains the results of the online survey undertaken by the Pillar 1 M&E Consultant. Those results refer to the proposed priorities by the stakeholders (per topic) for the programming period 2021-2027, the proposed areas for the development of potential project ideas, as well as the validation of the SWOT analysis per topic. The organisation of four focus groups (as presented in the methodology chapter) provided the opportunity to the Pillar 1 M&E Consultant team to verify the detailed analysis presented in the 1<sup>st</sup> Annual Pillar Monitoring Report (2019) and focus on some points of the analysis which attracted the interest of the focus groups participants. The SWOT analysis for all Blue Growth topics is presented at country level in an effort to further diagnose the specific needs and priorities of each country in the Adriatic-Ionian macro-region.

The *fifth chapter* starts with a brief review of the EU Blue Growth Strategy, as well as the latest developments regarding the new Cohesion policy 2021-2027, the regulations of the European Structural and Investment Funds, the general programming context under which the Blue Growth interventions are going to be implemented in the next programming period, taking also into account the Economic and Investment Plan for the Western Balkans. The chapter emphasizes in the presentation of Key Policy Recommendations for the new programming period 2021-2027 and the potential project ideas for the Pillar 1 topics.

The recommendations aim to provide a framework to be used as a potential guidance to the authorities involved in the design of the period 2021-2027. They are presented at topic, Flagship and Indicative Actions/Projects levels, based on the classification decided by the Governing Board and elaborated by the EUSAIR Facility Point.

The proposed project ideas are presented for all Pillar 1 topics, while two cross-pillar project ideas are examined in the topic of Blue Technologies. Each idea includes a brief description of the potential project and its significance for the macro-region, its relevance

with the Pillar 1 Flagships as well as the potential stakeholders and sources for funding. All projects presented were discussed in the respective Focus Groups organised in the framework of this study. The list of the project ideas comprises a pool of potential Blue Growth projects to be further exploited by the Thematic Steering Group 1.

Finally, the *last chapter* summarizes the main conclusions of the IDEAL EUSAIR study.

Athens, May 2021

## **1. BACKGROUND**

### **1.1. THE ADRIATIC – IONIAN MACRO-REGION**

The A-I region is a functional area primarily defined by the Adriatic and Ionian Seas basin. Covering also an important terrestrial surface area, it treats the marine, coastal and terrestrial areas as interconnected systems. With intensified movements of goods, services and peoples owing to the Balkan countries accession to the EU and with the prospect of EU accession for other countries in the Region, port hinterlands play a prominent role. Attention to land-sea linkages also highlights impacts of unsustainable land-based activities on coastal areas and marine ecosystems.

The AI region is still characterized by evident spatial and socioeconomic disparities. Alongside more advanced economic development poles, it features numerous territories that are lagging behind, often due to their isolation. The historical dichotomy between inner and coastal areas are clearly visible in some countries and less in the others.

The macro-region covers an area inhabited by more than 70 million people, which includes a multitude of cultures, languages spoken, religions and traditions<sup>1</sup>. The transnational cooperation at stake aims at jointly addressing the territorial challenges and potentials that characterise four European Union Member States (Croatia, Greece, Italy and Slovenia), four candidate countries (Albania, Montenegro, North Macedonia, Serbia) and one potential candidate country (Bosnia-Herzegovina). Each partner state is included to its full territorial extension except for Italy, where the programme area concerns twelve regions, mainly located on the Adriatic and Ionian Sea coasts, together with the two autonomous provinces of Trento and Bolzano, Umbria and Lombardia.

The Adriatic and Ionian region is heterogeneous in geographical terms, characterised as it is by a variety of coastal, insular, rural and mountainous areas, as well as by large urban agglomerations and suburban territories. This variety also concerns the economic, social and cultural features of the region, that constitute the hinge between the Mediterranean Sea and the Central and Eastern part of the European continent. Its geographical position is strategic also in terms of trade exchange, being in the middle between Asia and Europe as well as between the southern Mediterranean seaway connecting the Suez Channel and the Strait of Gibraltar and the centre of the EU market.

---

<sup>1</sup> Analysis of the territorial challenges, needs and potentials of the Adriatic-Ionian Region and strategic options for post-2020 ADRION Programme Appendixes to the TERRITORIAL ANALYSIS SITA - SOGES International Technical Assistance srl (Milano) Osservatorio Balcani Caucaso Transeuropa /Centro Cooperazione Internazionale (Trento) August 2020

Thanks to the efforts put in place in the last decades (as a consequence of the Adriatic-Ionian Initiative, but also of a number of cross-border programmes and other initiatives) the area is characterised by an increasing intensity of collaboration and cooperation. However, the Adriatic and Ionian region is still featured by strong disparities in a number of dimensions like:

- **Institutional**, in terms of both EU integration status (member and non-member states) and domestic administrative arrangements and models of social organisation (large and small countries, different administrative subdivision and organisational capacity etc.);
- **Social**, including differential demographic trends, quality of higher education and migration fluxes
- **Cultural**, which includes differences among countries, within each country and between generations
- **Economic**, in terms of performance, capacities of innovation, quality of production etc.

These differences are particularly evident when comparing the EU and the non-EU Member States, but also remarkable within some of the countries themselves (the case of Italian North and South regions is emblematic).

Overall, the territories present important human, natural resources and potentialities but are at the same time faced with urgent, multi-dimensional challenges concerning a number of socio-economic and territorial development spheres (i.e. climate change, environment and energy, labour market employment, migration and brain draining, networks, connectivity and transport).

## **1.2. THE EUROPEAN UNION STRATEGY FOR THE ADRIATIC - IONIAN MACRO-REGION (EUSAIR)**

The EU Strategy for the Adriatic and Ionian Region (EUSAIR) is a macro-regional Strategy adopted by the European Commission and endorsed by the European Council in 2014. The Strategy was jointly developed by the Commission and the Adriatic-Ionian region countries and stakeholders, which agreed to work together on the areas of common interest for the benefit of each country and the whole region.

The EUSAIR covers the nine countries that make up the Adriatic – Ionian macro-region: four EU member states (Croatia, Greece, Italy, Slovenia) and five non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia).

The **general objective** of the EUSAIR is to **promote economic and social prosperity and growth in the region by improving its attractiveness, competitiveness and connectivity. It also aims at protecting the sea, coastal and inland environment and ecosystems.** Moreover, the Strategy is expected to better integrate into the EU both candidate and potential candidate countries across the Region.

The development of the Strategy was based upon the main challenges and opportunities the macro-region was phasing in the period of the macroregional strategy adoption.

#### **Challenges and opportunities facing the Adriatic-Ionian region <sup>2</sup>**

Today there are very noticeable socio-economic differences across the countries in the Region. While some regions enjoy low unemployment; others have jobless rates of over 30%. Gross Domestic Product (GDP) per head, between the different countries, also vary significantly.

There are substantial differences in road, rail and maritime infrastructure between countries. There is also an urgent need for more investment in energy networks to ensure a secure and efficient supply across the Region.

Ecosystems are under intense pressure due to the ever-increasing human use of marine and coastal space. Over-fishing, untreated waste, oil and gas pollution and the illegal hunting of migratory birds are all significant issues.

In addition to major seismic activity, the Region is also under threat from climate change – flooding, drought, soil erosion and forest fires are all increasing realities. In terms of economic potential, the tourism sector is not optimally managed or exploited, and could benefit from better coordination.

In addition, the region's administrations and institutions may benefit from opportunities for modernisation and better linkages, among others, in order to combat illegal migration and cross-border crime. Combined with other actions, the objective is to create further opportunities for smart, sustainable and inclusive growth right across the Adriatic and Ionian Region. For example, a big opportunity exists for the Blue Economy to prosper and change the face of the Region. In relation to mobility, the sea basin provides a natural waterway penetrating deep into the EU.

There is thus a great potential for improved land sea connectivity and intermodal transportation. An opportunity also exists for investment in energy improvements, such as smart grids and to increase energy efficiency and the use of renewables. The area's outstanding natural beauty and rich cultural, historic and archaeological heritage also has obvious potential for sustainable, responsible and diversified tourism

The EUSAIR is built on four thematic Pillars. Pillar 1: Blue Growth, Pillar 2: Connecting the Region, Pillar 3: Environmental quality and Pillar 4: Sustainable tourism. Moreover, “Strengthening R&D, Innovation and SMEs” and “Capacity building, including communication” are two cross-cutting aspects across each Pillar.

---

<sup>2</sup> **Source:** European Commission, For a prosperous and integrated Adriatic-Ionian Region, June 2014.



### 1.2.1. EUSAIR Pillar 1 – Blue Growth

The overall objective of Pillar 1 “Blue Growth” is about driving innovative maritime and marine growth in the Adriatic-Ionian Region by promoting sustainable economic growth and jobs as well as business opportunities in the blue economy sectors.

This requires building on the regional diversity in the Adriatic-Ionian Region, and taking into account that there are various pathways to innovative maritime and marine growth. At the same time a number of challenges and development opportunities need to be approached through cooperation among the countries, regions and cities.

According to the EUSAIR Action Plan<sup>3</sup> the **specific objectives** for this Pillar are:

1. To promote research, innovation and business opportunities in Blue Economy sectors, by facilitating the brain circulation between research and business communities and increasing their networking and clustering capacity.

---

<sup>3</sup> Action Plan, Brussels, 2.4.2020 SWD(2020) 57 final.

2. To adapt to sustainable seafood production and consumption, by developing common standards and approaches for strengthening these two sectors and providing a level playing field in the macro-region.
3. To improve sea basin governance, by enhancing administrative and institutional capacities in the area of maritime governance and services.

To achieve the abovementioned objectives, Pillar 1 will focus on **three topics**:

### **Topic 1 – Blue Technologies**

The Adriatic and Ionian region is short on clustering and fails to fully exploit the advantages that could be gained from better cooperation between research centres and the public and private sectors. There is an insufficient “business resource efficient culture” in the Region resulting from weak involvement of stakeholders and interrelation of business, research and the public sector. Some key sectors, such as shipbuilding, the boating industry and logistics, risk losing competitive leverage while others, such as marine technologies or blue bio-technologies, have not yet developed to their full potential. To maximise sustainable economic growth and employment as well as business creation based on blue technologies, brain circulation between research and business communities must be enhanced, their capacity to network and cooperate increased, and access to seed and venture capital improved.

### **Topic 2 – Fisheries and Aquaculture**

Fisheries and aquaculture are important sectors for Blue Growth in the Adriatic-Ionian Region. In particular, the social, cultural and economic contribution of fisheries is crucial at local and regional level, especially on islands and in remote regions.

#### *Fisheries*

The Strategy aims at long-term sustainable and responsible fisheries so that fishing activities can continue to provide income for coastal communities. For this, the following points are of particular importance:

- Effective implementation of the principles of the Common Fisheries Policy (CFP)
- Market intelligence and services
- Sustainable fishery management
- Control, monitoring and surveillance



## *Aquaculture*

The development of a strong, high-quality aquaculture sector that is economically sustainable and environmentally-friendly, contributes to job creation and to supply of healthy food products, respecting the EU and international rules. However, a number of barriers prevent aquaculture in the Adriatic-Ionian Sea basin from developing its full potential: lack of a clear and harmonised policy with respect to access to space and licensing; industry fragmentation; limited access to seed capital or loans for innovation; time-consuming administrative procedures and red tape.

Respecting subsidiarity, the Common Fisheries Policy (CFP) reform proposes to promote aquaculture through a coordinated approach, based on non-binding strategic guidelines and common priorities and exchange of best practices through the open method of coordination.

### **Topic 3 – Maritime and Marine Governance and Services**

The countries in the Adriatic-Ionian region are characterised by different administrative and political structures as well as government and governance systems. A wide range of topics relevant for strengthening Blue Growth are not tied to specific sectors such as Blue Technologies, fisheries or aquaculture.

These overarching topics address mainly the wider administrative capacity to deliver marine and maritime services of public interest. Cooperation on various services – notably those linked to the capacity building in the public sector and better coordination of planning activities – is needed for preparing the ground for better marine and maritime governance and services. In a wide range of fields, coordination of activities would improve use of existing resources. Focus should be on bringing together national or regional activities under one roof, e.g. via joint planning efforts.

### **1.3. THE BLUE ECONOMY IN THE ADRIATIC – IONIAN MACRO-REGION**

The Blue Economy encompasses all economic activities related to oceans, seas and coasts, whether they take place in the marine environment (e.g. shipping, fisheries, energy generation) or on land (e.g. ports, shipyards, land-based aquaculture and algae production). Alongside its traditional sectors, innovative activities are evolving: ocean renewable energy, blue bio-economy and biotechnology, desalination etc. Linked to the European Green Deal and its ambitions in the area of decarbonisation, circularity, biodiversity and zero pollution, the European Blue Economy has therefore a double role:

- On the one hand, the Blue Economy is indispensable to achieve those ambitions. Many solutions (renewable energy, plastic-free packaging, low-impact food) will come from the blue economy.

- On the other hand, the blue sectors themselves will have to reduce their own environmental and climate impact significantly to contribute to the overall targets<sup>4</sup>.

In the EU framework, a new concept, this of **sustainable Blue Economy** takes over earlier denominations such as “Blue Growth” or “Integrated Maritime Policy”. It **encompasses policies guiding the specific blue economic activities as well as the horizontal support instruments such as blue skills and careers, ocean knowledge and research & innovation, investment, ocean literacy and planning**. The sense of integration and interconnection is the key of the EU’s new approach to the sustainable blue economy. And as the ocean doesn’t stop at national borders, the EU continues to invest in strong regional cooperation to develop the blue economy in the various sea basins.

### **1.3.1. State of play of the Blue Economy in the A-I region**

The Blue Economy is embedded in the overall EU economy, although EU member countries illustrate significant differentiations as for their contribution in the European Blue Economy figures. The EU-28 GDP was estimated at €15.900 billion in 2018 (€13.500 without the UK) and employment at 224 million people (194 million people without the UK). The contribution of the Blue Economy to the EU-28 economy in 2018 was 1.5 % in terms of Gross Value Added (GVA) and 2.2% in terms of employment. **The relative size of the EU Blue Economy in terms of GVA with respect to the overall economy has remained stable at around 1.5% since 2012, while it has increased in terms of employment from 1.8 % in 2015 to more than 2.2 % in 2018.**<sup>5</sup>

The latest edition of the EU Blue Economy Report (2020) provides estimations on the size of the Blue Economy established sectors<sup>6</sup> in terms of GVA and employment across sea basins. The largest sea basin in terms of GVA was the Atlantic Ocean (€73.4 billion or 36% of the EU Blue Economy GVA), while **in the Adriatic and Ionian Region, the Blue Economy generated €23 billion GVA (11% of the overall EU Blue Economy GVA) and 0.85 million jobs (19% of the EU employment in the Blue Economy)**. Both figures are estimated on the basis of 2017 data.

The Blue Economy in the Adriatic-Ionian region illustrated a significant expansion in 2018; the total GVA in the Blue Economy Sectors increased by 9,8% in the four EU member states, while in those countries the total Blue Employment was increased by 15,7%. Italy has been the leading country for the expansion of the GVA in the Blue

---

<sup>4</sup> In this framework the new approach for the sustainable Blue Economy in the EU is expected in the first half of 2021.

<sup>5</sup> European Commission, The Blue Economy Report 2020.

<sup>6</sup> The contribution of the blue economy in the overall European economy is measured on the basis of the following seven sectors: Marine living resources, Marine non-living resources, Marine Renewable energy, Port activities, Shipbuilding and repair, Maritime transport and Coastal tourism.

Economy sectors, while Greece and Italy showed the faster expansion of the Blue Employment in the macro-region<sup>7</sup>.

In 2018, the Coastal Tourism is the subsector with the higher share in the formation of the GVA in EUSAIR countries (54.2% of the GVA produced in the blue economy sectors), followed by the subsectors of Marine Transport (17.1%), Marine Living Resources (9.4%), Port Activities (9.1%), Shipbuilding and Repair (7.9%), and Marine Non-living Resources (2.2%)<sup>8</sup>. The vast majority of the Blue Employment has been absorbed by the Coastal Tourism Sector (72.8% of the total blue employment), followed by the sectors of Marine Living Resources (9.9%), Marine Transport (7.7%), Shipbuilding and Repair (4.7%), Port Activities (4.6%) and Marine Non-Living Resources (0.3%).

The EU members of the EUSAIR demonstrate different characteristics regarding their performance in the main Blue Economy sectors<sup>9</sup>.

**ITALY:** The Italian Blue Economy employs around **525.216 people** and generates over **€23.3 billion in GVA**. In 2018, it contributed with 2.3% to national jobs and 1.5% to national GVA. The share of Blue GVA underwent a low period between 2011 and 2015 but has almost returned to 2009 figures. Blue jobs also appear to be recovering, albeit at a slower pace. The Blue Economy in Italy is largely dominated by Coastal tourism, which contributed 59 % to Blue jobs and 45% to GVA in 2018. Maritime transport is also an important contributor to the Blue Economy, generating 13% of jobs and 20% of GVA. In fact, all established blue sectors are important contributors to Italy's economy, apart from Marine non-living resources and Marine renewable energy. At the EU level and in terms of GVA generation, Italy ranks second in Maritime transport, producing 13% of the EU total, third in Coastal tourism (12%) and fourth in Shipbuilding and repair (14%), Marine living resources (13%), Port activities (9%) and Marine non-living resources (4%).

**GREECE:** The Blue Economy established sectors in Greece employs around **533.470 people** and generates over **€8.4 billion in GVA**. Overall, Blue Economy jobs decreased by 7.4% and GVA by 36.1% compared to 2009. Nonetheless, the share of the Blue Economy to the national economy continues to be substantial: in terms of jobs, the Blue Economy contributes 14.2 % of all national jobs, the highest share in the EU. In terms of GVA, Greece ranks fourth with the Blue Economy contributing to 5.2%. Greece's Blue Economy is dominated by Coastal tourism, which contributed with 85% to Blue jobs and 69% to Blue GVA in 2018. Maritime transport 10 is also a large contributor, with 13% of the GVA and 3.8% of the employment, while Marine living resources generate around 7% of jobs and GVA. According to the Union of Greek ship owners, 2016-2017 saw the first

---

<sup>7</sup> Special Service for Strategy, Planning and Evaluation, EUSAIR M&E Consultant, Pillar 1 "Annual Monitoring Report 2019", updated January 2021.

<sup>8</sup> Source: European Commission, DG MARE, Blue Indicators Online Dashboard, data processing

<sup>9</sup> EU Blue Economy |Report 2020, ANNEX 1: Member State Profiles.

signs of improved market conditions for global shipping after a long and deep recession. Greek shipping continues to hold the first position internationally.

**CROATIA:** The Croatian Blue Economy **employs 172.494 people** and generates around **€3.6 billion in GVA**. The Blue Economy contributes 8.4 % to the national economy in terms of GVA and 10.6 % in terms of jobs. The Blue Economy in Croatia is clearly dominated by Coastal tourism, which contributed with 79% to jobs and 82% of GVA in 2018. Marine living resources and Shipbuilding and repair are also important contributors. Although in decline, the Shipbuilding sector continues to be one of the most important industrial sectors in Croatia. The current Croatian shipbuilding industry is almost negligible in the context of global shipbuilding; however, it has a significant role within the national economy. Production portfolio consists of new buildings of various size(s), repair, conversion and offshore constructions. Currently however, several important shipyards are facing severe financial problem and an uncertain future.

**SLOVENIA:** Although a coastal state Slovenia has a coastline of only 47 km. The Slovenian Blue Economy (established sectors) employs around **7.947 people** and generates over **€296 million in GVA**. The Blue Economy represents 0.7% share of the national economy and 0.8% of employment. In absolute terms, Blue GVA increased by 28% while jobs decreased by 1.7% compared to 2009. Slovenia's Blue Economy is dominated by Coastal tourism in terms of employment and Port activities in terms of GVA. Coastal tourism generated 50% of the Blue jobs and 34% of the GVA, while Port activities contributed 29% to Blue jobs and 48% to GVA

As already mentioned, EUSAIR Pillar 1 strategy is structured on three topics; namely the Blue Technologies, the Fisheries and Aquaculture and the Maritime and Marine Governance and Services, aiming at capitalizing the strengths and opportunities of the member countries in this fields and promoting the sustainably blue economy in the macro-region. All EUSAIR countries demonstrate specific features regarding those topics, as summarized in the SWOT Analysis for Pillar 1, included in the Pillar 1 Annual monitoring report 2019 (drafted by the EUSAIR Pillar 1 M&E Consultant)<sup>10</sup>. The survey conducted in the framework of the Ideal EUSAIR study (Pillar 1-related study) provides the opportunity for further deepening this analysis at country level, as presented in detail in the next chapters of this report.

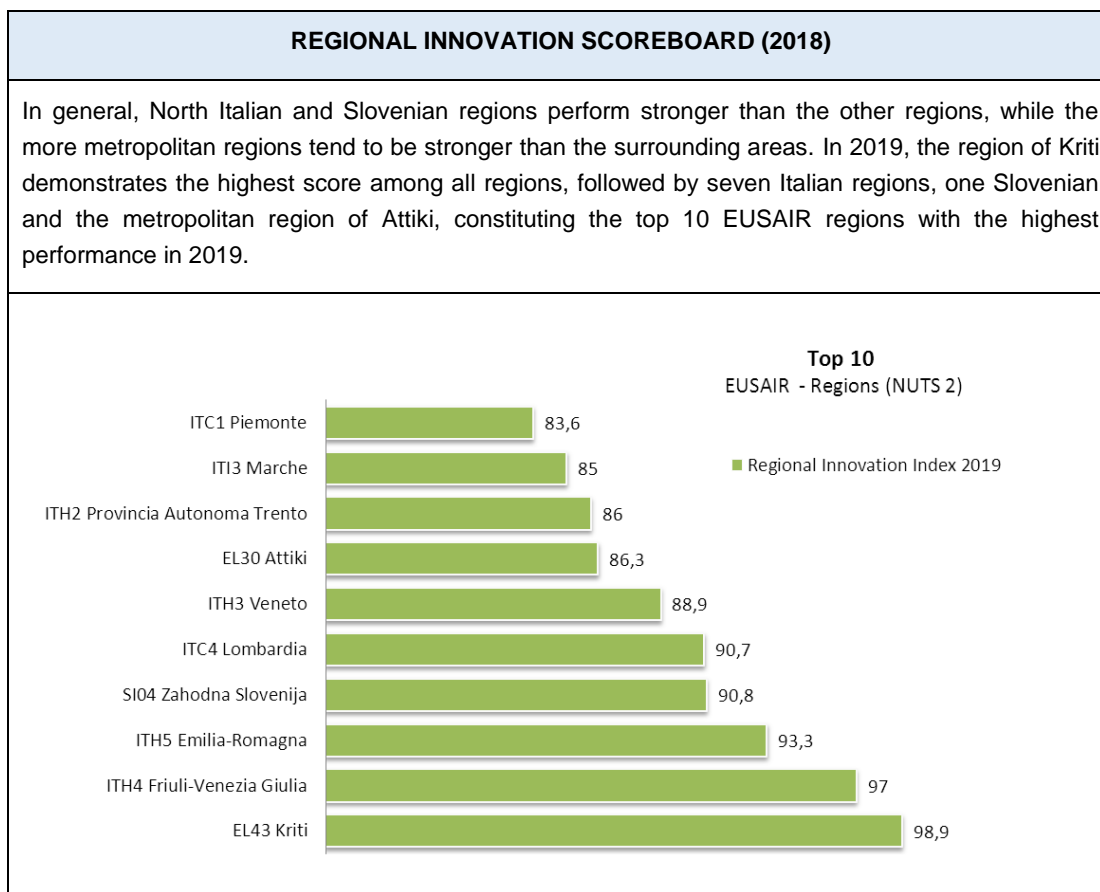
Additionally, EUSAIR member countries and regions demonstrate different characteristic in each dimension of the Blue Economy. The information presented below is based on the indicators used by the EUSAIR Pillar 1 Monitoring and Evaluation Consultant. For the topics of Blue Technologies and Fisheries and Aquaculture, two sets of indicators are used depicting the current state of play in the respective fields. As the third topic cannot be quantified by specific indicators, the current situation is described on a qualitative

---

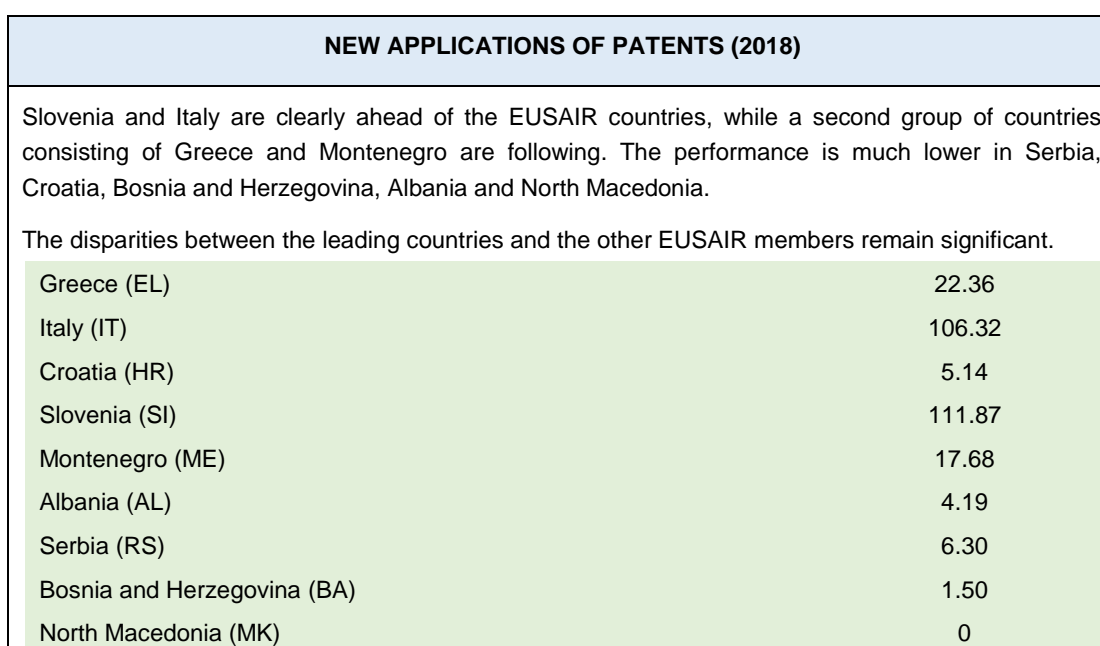
<sup>10</sup> Special Service for Strategy, Planning and Evaluation, EUSAIR M&E Consultant, Pillar 1 Annual Monitoring Report 2019 (updated February 2020).

basis at the level of Maritime and Marine Governance sub-topic, as defined by the EUSAIR Action Plan (2014).

## BLUE TECHNOLOGIES



Source: MRS.ESPON (v1)



Source: MRS.ESPON (v1), Number of patents submitted to the European Patents Office per million of inhabitants

<b>GROSS DOMESTIC EXPENDITURE ON R&amp;D (2017)</b>	
Slovenia and Italy display values that are ahead of the other EUSAIR countries, while Greece is the third country exceeding the 1% of the GDP. Serbia and Croatia follow, demonstrating expenditure around 0.87%, while Bosnia and Herzegovina and North Macedonia have a very low gross domestic expenditure on R&D.	
The data for Montenegro and Albania are currently missing	
Greece (EL)	1,13
Italy (IT)	1,35
Croatia (HR)	0,86
Slovenia (SI)	1,86
Serbia (RS)	0,87
Bosnia and Herzegovina (BA)	0,20
North Macedonia (MK)	0,36

Source: MRS.ESPON (v1)

## **FISHERIES and AQUACULTURE**

<b>EMPLOYMENT IN FISHERIES AND AQUACULTURE (2018)</b>	
Albania demonstrates the higher proportion of employment in Fisheries and Aquaculture among the EUSAIR countries for which there are available data, demonstrating also an increase from 2015. Greece, which demonstrates a declining tendency and Croatia follow Albania, while the share of employment in the sector is lower in Italy, Serbia and Bosnia and Herzegovina.	
Greece (EL)	<b>0,30%</b>
Italy (IT)	<b>0,09%</b>
Croatia (HR)	<b>0,27%</b>
Albania (AL)	<b>0,38%</b>
Serbia (RS)	<b>0,08%</b>
Bosnia and Herzegovina (BA)	<b>0,10%</b>

Source: MRS ESPON (V1). Employment in the fisheries, aquaculture and processing sectors in relation to all employed persons. The data for aquaculture only covers marine aquaculture.

<b>AQUACULTURE PRODUCTION (2018, tons)</b>	
According to the updated FAO database the total aquaculture production in the A-I region was 315.407 tons in 2018. Italy and Greece represent more than 87% of the total Aquaculture Production in the A-I region.	
Albania (AL)	6.258
Bosnia and Herzegovina (BA)	3.639
Croatia (HR)	18.067
Greece (EL)	132.392
Italy (IT)	143.338
Montenegro (ME)	1.097
North Macedonia (MK)	1.359
Serbia (RS)	7.339
Slovenia (SI)	1.918
<b>TOTAL</b>	<b>315.407</b>

Source: F.A.O Database.

<b>CAPTURE FISHERIES PRODUCTION (2018, tons)</b>	
According to the FAO updated data, the total capture fisheries production in the AI region was <b>367.462 tons in 2018</b> . Italy represents 56.3% of the total fisheries catches in the AI-R in 2018, followed by Greece (21%) and Croatia (19.2%). All EUSAIR countries with the highest fisheries production illustrate increase in 2018.	
Albania (AL)	8.648
Bosnia and Herzegovina (BA)	305
Croatia (HR)	70.557
Greece (EL)	77.237
Italy (IT)	206.936
Montenegro (ME)	1.293
North Macedonia (MK)	140
Serbia (RS)	2.082
Slovenia (SI)	264
<b>TOTAL</b>	<b>367.462</b>

Source: F.A.O Database

## MARITIME AND MARINE GOVERNANCE AND SERVICES

### MARITIME SPATIAL PLANNING (MSP)

Based on the current state, EUSAIR countries present different levels of progress in the planning process, as result of the different planning cultures, approaches and planning tools. Despite the fact that all countries have made the necessary legislative adaptations and some of them have a vast majority of national laws and legislation which regulate sub-topics of marine areas, so far no country has delivered a national Maritime Spatial Plan.

Based on the MSP Directive all countries have designated competent authorities; however, the large number of institutions and authorities involved results in a time consuming and complex decision-making process. Furthermore, the different approaches regarding country planning vs regional planning may affect the growth potentials of maritime economic activities (indicatively licensing and concession rights). The involvement of national and regional authorities in EU-funded projects add significant knowledge and expertise in the planning process (steps, data required, stakeholders' involvement etc.), while pilot plans have been generated in some cases.

Nevertheless, there are significant gaps that need to be addressed in order authorities to be able to deliver effective plans. Gaps concern the knowledge required related to the impacts of the various human activities developed in coastal regions, the capacity of authorities in designing and implementing MSP and the lack of cooperation among authorities at national and transnational level.

### INTEGRATED COSTAL ZONE MANAGEMENT (ICZM)

Based on the current state there are no national strategies for the majority of the EUSAIR countries and ICZM initiatives can be characterized by insufficient integration with the existing legal and planning systems. Although some EUSAIR countries have already prepared ICZM strategies and participated/participate in several national and EU projects there is a growing demand for access to marine space and sources in their coastal zone. In many cases it is not clear which institutions have the responsibility for the implementation of ICZM as there is lack of interactions between the different actors. Mapping the current situation about the ICZM procedures in the EUSAIR countries, probably though addressing to national institutions, authorities and experts, remains an imperative.

### MARITIME SKILLS

The New Skills Agenda for Europe recognizes that the lack of skills affects the employability and respectively the prosperity of the European citizens, while the observed mismatch or the lack of necessary skills leads to low productivity and further affects the resilience of countries' economies to shocks and other events. A challenge met across the Blue Economy is the poor image of the sectors' activities among young people and the lack of information in respect to career opportunities which in combination with the ageing trend of the European population generates lack of qualified personnel. An indicative example is this of maritime sector. Based on BIMCO's there is a shortage of 16.500 officers while is estimated that additional 147.500 officers will be needed by 2025 to serve global fleet. At the same time maritime sector is through a profound technological transformation which is not currently reflected to existing curricula. Thus, there is: a) a *knowledge gap*, which deals with the



number of changes in laws and regulations in international level and the changing environment of trade practices and b) a *skill gap* which is related to specific competences required both on board and ashore such as people management, as well linguistic competences.

Similar gaps and challenges are observed in the hospitality sector. Tourism professions have poor image characterized by seasonality and low wages, while there are limited opportunities for structured career development. As such, it is generally accepted that the sector employs mostly low-skilled workforce. In addition, the sector is dominant by Small Medium Enterprises (SMEs) that have to correspond to the international competition through networking and qualified workforce as component of differentiation. However, SMEs can't afford investing in the education and training of their employees due to limited resources and if they do so the return rate is low due to the high mobility observed in the sector.

In this context, there is need for interventions for bridging the gap between workforce supply and demand in terms of skills requirements in the various sectors of Blue Economy and correspond to the shortage of qualified personnel in the EUSAIR level. In order each country to determine its needs in future workforce and respectively to invest in specific education and training schemes and initiatives is necessary to update the prioritization of Blue Growth sectors and their future potential. Furthermore, it is necessary to develop partnerships between industry and the academia for the update of the curricula and their adaptation to present needs. Also, it is required the collaboration among MS's institutions for the delivery of joint education and training programs, based on the specialization of each academic institution, in order to exploit expertise and generate the conditions for knowledge transfer and capacity building.

The COVID-19 pandemic, after 2020, shadows the evolution of the European economies, slowing down the progress in all economic sectors. The evolution of the Blue Economy in the Adriatic-Ionian region will be the result of the combined support provided through the EU Recovery Fund and the new Cohesion policy in the programming period 2021-2027 in the EU member countries, along with the support of the IPA countries to face the pandemic impacts on the national economies. The efficient incorporation of the EUSAIR priorities in the EU mainstream programmes, through the embedment of the 2021-2027 EUSAIR Flagships in the programme documents, which are currently under design, and the establishment of effective monitoring mechanisms of the EUSAIR interventions, are crucial factors for the Strategy to continue its implementation within its objectives, as defined by the EUSAIR Action Plan and the updated European Blue Growth Strategy.

### **1.3.2. Pillar 1 “Blue Growth” relevant projects in the A-I region**

According to the European approach regarding the macro-regional strategies, the EUSAIR implementation does not incur the allocation of additional financial resources; the achievement of the Strategy's objectives has been up to the implementation of projects financed under already established schemes in the EU and IPA countries.

The Cross-Border Cooperation and Transnational programmes, the mainstream programmes of the EU member states, the directly managed calls by the EU Directorates, the funding mechanisms in the IPA countries, but also the national

resources of the EUSAIR member countries represent the wide range of possibilities for financing EUSAIR relevant projects. The European Regional Development Fund (ERDF) and to a less extent the European Social Fund (ESF) are the main contributors to the financing of the EUSAIR relevant projects, while the European Maritime and Fisheries Fund (EMFF) plays the key role in the funding of interventions relevant to Fisheries and Aquaculture.

The Pillar 1 Annual Monitoring Report 2020, drafted by the Pillar 1 Monitoring and Evaluation Consultant, provides information on the implementation of Pillar relevant projects, financed by the above potential funding sources. As the proposed EUSAIR monitoring system has not been in place yet, the Pillar 1 Annual Monitoring Report represents the first systematic approach towards depicting the ways the Blue Growth priorities have been served in the EUSAIR member countries.

According to the Annual Monitoring Report 2020, a total of **2.374 projects** could be considered as relevant to the topics of EUSAIR Pillar 1. The total resources allocated to those projects are estimated in the area of **684,4 million euros**. Taking into consideration the lack of analytical data regarding the implementation of the EMFF in Italy, the country with the highest allocation of EMFF resources among the EUSAIR countries, **the total resources currently allocated to Pillar 1 relevant projects exceed one billion euros**.

There is a high degree of differentiation among those projects regarding their nature and size; from few thousand euros (e.g. projects under the EMFF operational programmes, ESIF programmes, etc.) to projects in the area of two-three million euros (e.g. projects under CBC and Transnational programmes, HORIZON 2020, etc.). It is of note that the 2014-2020 operational programmes “Fisheries and Maritime”, to what extent they are covered by the available data, represent the 80.2% of the reported projects and the 83% of the reported budget.

A strict classification of the Pillar relevant projects, according to the priorities/topics cannot be presented, as many projects could incorporate priorities from more than one topic. Clearer is the relation of the projects approved under the EMFF operational programmes (1.904 projects, € 398 million), which serve the priorities of the topic of “Fisheries and Aquaculture”. The majority of the remaining projects, mainly those under the CBC programmes, HORIZON 2020 but also under the ESIF programmes refer to the topic of Blue Technologies. A part of them may include components of the third topic (Maritime and Marine Governance and Services), such as training on maritime skills, or elaboration of common strategies in the field of marine and maritime governance.

### 1.3.2.1. CBC and Transnational programmes

The **Cross-Border Cooperation and Transnational programmes** contribute to EUSAIR – Pillar 1 topic with 48 projects with a total budget of about € 81.39 million. The topic of Blue Technologies is widely supported by those programmes.

The **INTERREG VB ADRIATIC – IONIAN (ADRION) 2014-2020** Programme plays an important role not only for the EUSAIR enactment, but also for the implementation of the Strategy. The programme which covers the same geographic area with EUSAIR and has been structured according to the EUSAIR Pillars, has funded significant EUSAIR projects for each Pillar or cross-pillar ones.

For Pillar 1 “Blue Growth” currently a total of 12 projects are implemented, with a total budget of € 14,53 million. The majority of them (seven projects) are approved under the ADRION Priority Axis 1 “Smart and Innovative Region” (Investment Priority 1b). ADRION, through the first PA supports the development and clustering and networking among the main stakeholders of the AIR involving in the development and implementation of Blue Technologies. Two more relevant projects are identified under the PA 2 “Sustainable Region” (Investment Priority 6d) and PA 3 “Connected Region” (Investment Priority 7c).

#### **TOOLS DEVELOPED FROM THE EUSAIR RELEVANT PROJECTS UNDER ADRION 2014-2020**

A tool established by the **NEORION project** to reinforce the traditional shipbuilding sector through coordinated efforts that will facilitate the exploration of innovative technologies and technology transfer between new complementary markets such as new materials and specialized vessels. NEORION aims at establishing a transnational Cluster in the Adriatic-Ionian on Green Shipbuilding that will accelerate both the cooperation of key actors and innovation industry.

A Smart Learning Model was developed by the **FUTURE 4.0 project** to deal with companies of the maritime sector. The model is an intelligent and integrated learning space that is open to end users and is based on practical, specialized learning theory, and modern education methods that consists of devices, e-tools, e-learning, traditional as well blended learning techniques, media, teaching resources, teachers’ communities, and learners’ communities

**SHIPMENTT project** aims at establishing an innovation ecosystem focused on the green sea mobility sector (referred partially as green Cross-Pillar Cross-Sectoral ADRION Thematic Cluster on Blue Growth and related Smart Growth Blue Innovation Voucher Scheme Transnational Seawater Heat Pump Network Pilot Actions for SSF & AQ Regional & International Strategies shipping in EUSAIR) across the ADRION area. The project a) design/ improve tools in the IP/access2finance space, b) implement them in a pilot environment (e.g. 1:1 support and an online showroom), c) extract conclusions about the effectiveness of their use in the region’s socio-economic and cultural context, and d) formulate a strategy for the long-term development of innovation conditions in the region.

An Innovation Voucher Scheme was developed by **BLUE\_BOOST project**, providing €350.000 to 35 small-scale projects under the Blue Innovation Voucher Scheme, thus funding the implementation of innovation projects developed by companies. BLUE\_BOOST also is actively engaged to endorse a

Transnational Innovation Networking Strategy and Joint Action Plan for the long-term capitalization of project findings for maritime clusters in the involved 7 Adriatic-Ionian regions and beyond.

The **SEADRION project** launched a transnational seawater heat pump network to support sustainable development in the ADRIAN region, a science technology cooperation between research institutions and enterprises to enhance the innovation capacity of the heat pump sector and a common strategy to enhance the use of the seawater heat pump based heating and cooling.

Regional and international strategies supporting regions in increasing bioeconomy RDI level and cluster maturity were developed by **BIOECO-R.D.I project**. Thanks to the full implementation of those outputs, it is possible to integrate in a unique and consistent process, regions living different steps in the process of creation of regional bioeconomy. This process guarantees to the enterprises of the ADRIAN area to operate in a more advanced and integrated market, and to regional and national policy makers the needed support to develop effective policies based on circular economy approach.

One of the main goals of the **ARIEL project** is to test innovative technological and non-technological solutions to address day-by-day needs of small-scale fisheries and aquaculture operators in Italy, Croatia, Montenegro and Greece. To this, small-scale fisheries and aquaculture operators, institutions and research worked together from 2019 to 2020 to implement these pilot actions.

**PoWER project** aims to support the evolution of ports into Innovation Hubs, able to act as new transmission belts between regions, and to exploit their untapped entrepreneurial potential. One of the main outputs of the project is the establishment of PoWER Innovation Hubs Network (IHN) as well as the IHN joint Strategy for the evolution of ports into innovation hubs, supported by an ICT Platform devoted to its implementation.

Under the **OIS-AIR** Proof of Concept Call, 10 innovative projects developed jointly by research institutes and SMEs in the field of Transport & Mobility, Energy & Environment, Agro-Bioeconomy, were selected to be funded with 18.500 EUR vouchers. Opened in April 2019, the PoC call pushed research-based innovation in SMEs, supporting early stage technologies and patents (TRL 3-5) developed in universities and research institutes to be transformed into commercial applications through the co-development of prototypes/testing with established SMEs.

*Source: INTERREG ADRIAN, Blue Growth and related smart growth in the Adriatic-Ionian macro-region, Policy Paper, 2020.*

Another transnational programme, namely the **INTERREG VB MEDITERRANEAN 2014-2020**, demonstrates the highest financial allocation in Pillar 1 relevant projects, according to the current state of Pillar monitoring. Under INTERREG MED fifteen (15) Pillar 1-relevant projects are in progress, amounting a total budget of € 34,68 million; the majority of them also serve the Strategy priorities on Blue Technologies. More specifically, those projects are approved under two priority axes (PA) of the programme:

- Under the first priority axis (PA) “Promoting Mediterranean innovation capacities to develop smart and sustainable growth” eight relevant projects have been approved (€19.9 mil.). The interventions of the PA 1 aim at strengthening research, technological development and innovation (Thematic Objective 1) by promoting business investment in Research and Innovation (Investment Priority 1b).

- Under the third priority axis “Protecting and promoting Mediterranean natural and cultural resources” five relevant projects are funded (€ 11.0 mil). Those projects serve the Investment Priority 6d.

Under the **INTERREG VA ITALY – CROATIA 2014-2020**, a total of 13 Pillar 1 relevant projects have been identified, whose total budget exceeds € 26.65 million. Those projects are approved under two priority axes (PA) of the programme:

- The first priority axis “Blue Innovation” includes ten (10) relevant projects (€20.62 mil.) The projects are funded under the Thematic Objective 1 aiming at promoting business investment in Research and Innovation (Investment Priority 1b).
- The third priority axis “Environmental and Cultural Heritage” includes three (3) Pillar 1 relevant Projects (€ 6.3 mil). The projects serve also the Thematic Objective 6 (Investment Priority 6d).

Finally, some more Pillar 1 Blue Growth relevant projects are identified under other CBC programmes of the programming period 2014-2020:

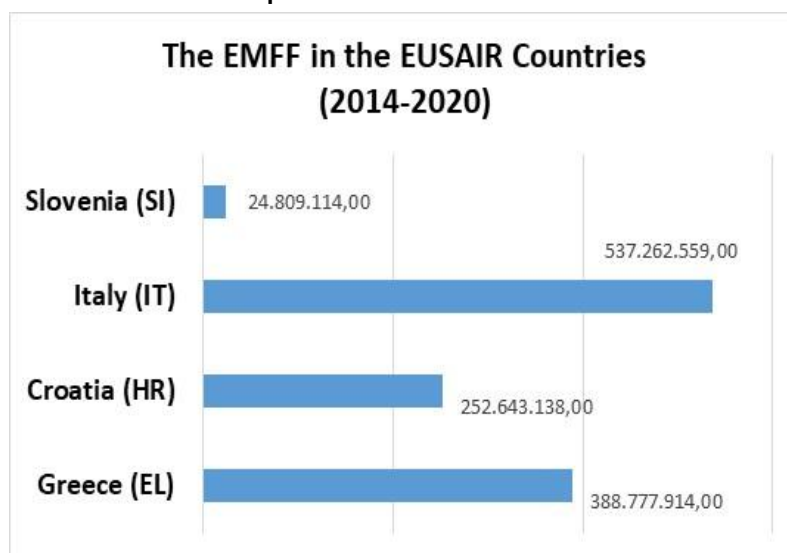
- Under the *INTERREG IPA CBC Programme Greece-Albania 2014-2020*, two Pillar relevant projects are being implemented (total budget € 823.300) approved under the PA 1 “Environment”.
- The *INTERREG CBC Programme Italy-Albania-Montenegro 2014-2020* includes four projects relevant to the Pillar 1 priorities, whose total budget amounts € 3.1 million. Three of them are funded under the PA 3 “Environment and Energy” of the OP, while one project under the PA 1 “Competitiveness of the SMEs”
- Under the *INTERREG VA Programme Italy – Slovenia 20014-2020* one relevant project is in progress under the first priority axis of the programme “Promoting innovation capacities for a more competitive area” (total budget € 1.016.780).
- Finally, under the *URBACT III 2014-2020 programme* a project carried out by the City of Piraeus (GR) as lead partner of a consortium consists of partners from Greece, Italy and other non EUSAIR countries. The budget of the project was € 600,000. The city of Piraeus put in place the Blue Growth Initiative (BGI), an innovation competition for Blue Economy, to strengthen traditional economic activities related to the maritime sector with innovative business ideas. BGI helps young entrepreneurs realise innovative concepts and create jobs in Blue Economy. BGI comprises: innovative proposals submission, evaluation, an award ceremony, and an incubation programme. The heart of BGI is Marinescape, a quadruple-helix ecosystem for Blue Economy.

### 1.3.2.2. Cohesion policy programmes (EMFF, ERDF, ESF)

In the EU countries, a significant number of relevant projects are funded by the **ERDF, ESF, as well as the European Maritime and Fisheries Fund**. According to the available data 2.295 projects of a total budget of about € 564.69 million can be reported by the Pillar 1 Annual Monitoring Report 2020.<sup>11</sup>

The **European Maritime and Fisheries Fund (EMFF)** supports fishermen in the transition to sustainable fishing, coastal communities in diversifying their economies, finances projects that create new jobs and improve quality of life along European coasts, and supports sustainable aquaculture developments. In the programming period 2014-2020, 1.203.492.725 Euros have been allocated to the 4 EU countries (EU contribution) in the AI-R out of which 44.64% for Italy (for the whole country and not only for the EUSAIR regions)<sup>12</sup>, 32.30% for Greece, 20.99% for Croatia and 2.06% for Slovenia.

Total allocations of European Maritime and Fisheries Fund 2014-2020\* (€)



The majority of the EMFF interventions is considered relevant for the Pillar 1 topic Fisheries and Aquaculture. The specific Measures of the Fund which are accepted as Pillar-related are defined by the Pillar 1 proposed monitoring system, in collaboration with the TSG Coordinator and the Managing Authority of the Operational Programme “Maritime and Fisheries 2014-2020” of Greece. According to this consideration and on the basis of the data availability, the Annual Report identifies **a total of 1.904 projects, which have been approved for support under the EMFF in the A-I, whose total budget exceeds € 398,0 million.**

---

<sup>11</sup> The figures are under-estimated, taking into account that the above information does not include updated data on the number of projects and the financial resources allocated to them for the OP “Maritime and Fisheries 2014-2020” of Italy, the largest EMFF funded operational programme among the EUSAIR countries. Actually, those figures include the implementation of the respective OPs only in Greece and Croatia and partially in Slovenia.

<sup>12</sup> In Italy, the EUSAIR involves 12 regions and 2 provinces: Abruzzo, Molise, Puglia, Basilicata, Calabria, Sicilia, Provincia Autonoma di Trento, Provincia Autonoma di Bolzano/Bozen, Veneto, Friuli-Venezia Giulia, Lombardia, Emilia-Romagna, Umbria and Marche.

Furthermore, in 2020, a total of **391** projects of a total budget of about **€166.58** million can be considered as relevant to the Blue Growth priorities of the EUSAIR, implemented under the mainstream programmes of the EU member countries.

The vast majority of those projects are reported by **Italy**. According to the report 354 Pillar 1 relevant projects have been implemented, whose total budget exceeds € 138.42 million. Pillar 1 priority relevant projects are approved mainly under the regional operational programmes namely; the O.P. Puglia 2014-2020, the O.P. Emilia Romagna 2014-2020, the O.P. Veneto Region 2014-2020 and the O.P. Friuli Venezia Giulia Region 2014-2020.

#### **INDICATIVE RELEVANT PROJECTS UNDER THE ITALIAN MAINSTREAM PROGRAMMES 2014-2020**

Under the 1<sup>st</sup> Priority Axis (Research, Technological Development and Innovation) of the **OP Emilia Romagna 2014-2020**, **14** relevant projects are funded from ERDF, whose total budget is around **€ 7.4 million**. In the same Priority Axis **22** more projects of **€ 3.18** million are funded by the ESF in the sector of education. Moreover, in the 1<sup>ST</sup> Priority Axis (Strengthening research, technological development and innovation) of the **O.P. “Friuli Venezia Giulia Region 2014-2020”**, **15** projects have been approved, following two calls for proposals in 2016 and 2017. The total budget of those projects exceeds **€ 16.5 million**. All projects refer to the Action of "Standard and strategic projects of R&D - public private partnership" in the field of Maritime Technologies<sup>13</sup>. Furthermore, in the same OP, ESF finances nine projects (total budget **€ 4.9 million**), relevant to the first topic of the Pillar (Blue Technologies), being also relevant with the Pillar 2 priority of Marine Transport. The interventions aim at: A) Improving the quality, effectiveness and access to higher and equivalent level education in order to increase participation and success rates, especially for disadvantaged groups, B) Improving the labour market responsiveness of education and training systems, promote the transition from education to employment and strengthen and improve the quality of vocational education and training systems, also through anticipation mechanisms for skills, adaptation of curricula and the introduction and development of work-based learning programmes, including dual learning and apprenticeship systems.

One small project is related to the topic of Fisheries and Aquaculture, while a special programme to support the development of higher post lauream education (Higher education and development) is also implemented in the region.

Under the **“OP Veneto Region 2014-2020”** the ERDF finances a total of 266 projects, whose budget in terms of ERDF contribution amounts about € 48.3 million, the total public expenditure allocated to those projects exceeds € 100 million. All projects are approved under the Priority Axes 1 (Research and Development and Innovation) and 3 (Call for support for investment projects for competitive repositioning of Industrial Districts, Regional Innovative Networks and Business Combinations), and **are evaluated as relevant to the first and second topics of Pillar 1** (Blue Technologies, Fisheries and Aquaculture). Under the **“OP Puglia Region 2014-2020”** two state aid calls have been launched, aiming at supporting investments by large companies in association with SMEs, with a total budget of € 5,0 million.

---

<sup>13</sup> Among the criteria adopted for the selection of projects the call has foreseen also the inclusion of coherence with the EUSAIR Action Plan under the main criteria set 2. "Economic potential of the project" of the call (capacity of responding to the market, of opening up new market considering the value chains and the technological drivers)

In addition, in the framework of the "Call for the development and strengthening of 4 new national technological clusters" for the strategic interest area "Blue Economy", two projects have been financed with a total budget of €1.5 million.

A) Technological solutions for multi-objective offshore energy platforms – TEOREMA. The project aims at strengthening the development opportunities and economic growth in the emerging energy sector from the sea, developing innovative technologies for the integrated production of energy from different renewable sources on offshore platforms in Italian seas.

B) Technological innovation for the protection and enhancement of marine ecosystems – ITEM. The ITEM project aims to innovate marine research in Italy and to create a tool for sustainable economic and social growth based on a sustainable use of resources and opportunities offered by the blue economy

It is of note the significant involvement of the Emilia Romana Region in research projects of HORIZON 2020.

In **Greece**, Pillar 1 relevant projects are mainly identified in some calls published by the OP "Competitiveness, Entrepreneurship and Innovation 2014-2020", the OP "Education and Lifelong Learning" as well as some regional operational programmes. In total, 35 projects have been identified as Pillar 1-related, representing a budget of € 20.7 million.

In Croatia, under the operational programme 'Competitiveness and Cohesion 2014-2020' a total of 35 calls provide the opportunity to enterprises and research institutions to be funded for implementing R&D projects in a range of research sectors, among which the Blue Technologies. The total budget of those projects is about € 63.7 million. All projects are approved under the first Priority Axis of the OP "Strengthening the Economy through Application of Research and Innovation". Currently projects of about € **4.0** million could be considered as relevant to Blue Technologies, while more information on the number of the projects approved and the number of beneficiaries is not currently available.<sup>14</sup>

**Finally**, Slovenia is involved in two cooperation projects financed by the ERDF, in which other EU countries also participate.

The '*Industrial Symbiosis for Regional Sustainable Growth and a Resource Efficient Circular Economy*' project (SYMBI, € 1.6 million). The project contributes to improving the implementation of regional development policies and programmes related to the promotion and dissemination of Industrial Symbiosis and Circular Economy from 7 participating countries faced to policies alignment with the Circular Economy Strategy of the European Commission to transform Europe into a more competitive resource-efficient economy.

---

<sup>14</sup> Moreover, under the Priority Axis "Business Environment" six more big projects of financial instruments have been launched, for all sectors of Croatian Economy; Fisheries and Aquaculture, are also eligible sectors. The total budget of those projects is € 307,8 million and the financial instruments will be available until the end of 2023. Those projects are: 1) Financial Instrument: ESIF limited portfolio guarantee, 2) Financial Instrument: ESIF individual guarantee without interest rate subsidy (2 projects), 3) Financial Instrument ESIF Small Grants (2 projects) and 4) Accelerator of entrepreneurial beginners, Venture Capital for ownership investment in innovative companies with high growth potential



The second project is the 'Water reuse policies advancement for resource efficient European regions' (AQUARES) approved under the OP Environment 2014-2020 (€ 1.84 million). AQUARES brings together 10 partners from 9 countries, to achieve efficient water management through water reuse, profit from the opportunities in the water market, and secure the protection of water bodies. The project will support public authorities to initiate efforts, join forces and exchange experiences to: identify viable strategies to utilize water reuse to confront inefficient uses of water and promote public dialogue to address conflicting interests.

### 1.3.2.3. Pillar 1 relevant projects implemented in the IPA countries

Among the four EUSAIR IPA countries, **Montenegro** reports Pillar 1 relevant projects financed by International Organisations or national resources.

- *Strengthening Fisheries Control and Management* (Spanish - Montenegrin consortium Tragsatec-StudioLasso). The total budget of the project is € 550.000. The project was implemented in three phases. The first phase entailed improvement of the Fisheries Information System of Montenegro through registering of the stakeholders in fisheries, registering the vessels and permits, creation of an electronic logbook, sales recording, and registering of biological and research data. The second phase concerned the supply of the automatic identification devices installed on 18 vessels above 10 meters length, which significantly improved the maritime safety on fishing vessels and the establishment of a system for the exchange of data between the Fisheries Information System (MARD) and the Maritime Transport Surveillance System (Ministry of Transport and Maritime Affairs). Finally, the third project phase entailed training on the use of contemporary information systems in fisheries, i.e. the Fisheries Information System, with a view to improving the work efficiency of inspectors, but also of representatives of science, administration, fishermen and other stakeholders.
- *World Bank loan. MIDAS II - Montenegro Institutional Development and Agriculture Strengthening*. The project consists of 3 components: Strengthening of MARD programmes for agriculture, rural development and fisheries; Support to meeting of the benchmarks for closing of the Chapter 12 on Food Safety, Veterinary and Phytosanitary Policy; and fisheries sector modernisation. The budget is €10 million for five years for the fisheries component of the project.
- *FAO ADRIAMED - Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea (Montenegro, Italy, Slovenia, Croatia, Bosnia and Hercegovina, Albania)*. The annual budget for Montenegro is about € 40.000. The services provided contribute in supporting the monitoring of fisheries sector in Montenegro and to streamline the fisheries development policies in Montenegro so to be in line with the Ecosystem Approach to Fisheries and Aquaculture and to the Blue Growth. In addition, it will foster the scientific cooperation in the area, to the streamlining of

fisheries development policies in Montenegro in view of European Union (EU) admission and the capacity development of Montenegro institution to cope with fisheries management (MS 507.3.12).

The national budget of Montenegro finances two smaller projects: one from the Ministry of Agriculture and Rural Development and one from the Institute for Marine Biology.

#### 1.3.2.4. Pillar 1 relevant projects under the EU directly managed calls and programmes

Finally, Pillar 1 relevant projects can be identified in other programmes and initiatives of the European Commission; mainly projects are running under EASME, HORIZON 2020 and LiFE+ programmes. Thirty-one projects are relevant to the Pillar 1 priorities, representing a budget of €38.27 million.

#### **Projects under DG MARE calls managed by EASME<sup>15</sup>**

The Executive Agency for Small and Medium-sized Enterprises (EASME) has been set-up by the European Commission to manage on its behalf several EU programmes in the fields of SME support and innovation, environment, climate action, energy and maritime affairs. Among the calls managed by EASME in the programming period 20014-2020 there are calls of DG MARE on the field of maritime affairs.

A total of **€ 61.675.000** (EU contribution) was allocated in 16 calls published by DG MARE and managed by EASME. Two of them, the call on “Blue Economy” (2/5/2018) and the Call on “Sustainable Blue Economy” (all four strands, 24/10/2017) represent almost 54% of this budget, while the rest are smaller calls (from 345.000 to 6.000.000 per call)<sup>16</sup>.

---

<sup>15</sup> It is mentioned that **of 1 April 2021, EASME ceased its operations and a new agency, the European Innovation Council and Small and Medium-sized Enterprises Executive Agency (EISMEA), was established. The EASME website is not updated anymore and will be archived shortly. EASME mandate and activities have been reassigned as follows:**

- The EIC and COSME programmes are delegated to the European Innovation Council and SMEs Executive Agency 'EISMEA'. You can also access directly the EIC website.
- The European Maritime and Fisheries Fund (EMFF), the LIFE programme and Horizon 2020 Energy Efficiency market-uptake activities (CSA) (under the new LIFE programme) and climate action part of the Horizon 2020 Societal Challenge 'Climate action, environment, resource efficiency and raw materials (under the new Horizon Europe) are delegated to the European Climate, Infrastructure and Environment Executive Agency (CINEA).
- Environment and resource efficiency projects have been delegated to the European Research Executive Agency (REA) and raw materials projects to the newly established European Health and Digital Executive Agency (HaDEA).

<sup>16</sup> The deadline for projects submission in the first Call (MARE/2020/08) expired in 2020 and the projects submitted are under evaluation.

An investigation among the projects implemented under these calls highlights few projects directly related with the priorities of EUSAIR Pillar 1 – Blue Growth. In general, the EUSAIR countries are involved in projects of about **€ 3,4 million**, 5,5% of the European contribution of those calls.

The call for proposals "**Sustainable Blue Economy**" (24/10/2017) with a total budget of €14.5 million attempts to accelerate the deployment of the Blue Economy across the EU and the Mediterranean. It aims at delivering concrete actions to support key European Commission policy initiatives in the fields of: innovation (de-risking investment in demonstration projects for the blue economy), environment (e.g. fighting marine litter), and cooperation for a sustainable blue economy and better ocean governance in the Mediterranean Sea basin. Under the call three projects involve mainly partners from EUSAIR countries, as presented in the next table. The total budget of these projects is **€ 2.141.814**. The third one is a research project carried out by Greek and USA research institutions and public authorities.

The "**Blue Careers**" call (29/2/2016) aims at filling existing skills' gaps by supporting activities that will increase the employability of various target groups in Blue Economy sectors (e.g. students, workers, unemployed people etc.). The total available budget of the call is € 3.452.000. Under those calls two projects are implemented, each of them exclusively by Italian or Croatian partners. The total budget of the projects is **€ 876.092** and both could be considered as widely contributing to the Pillar 1 priority of improving the level of maritime skills in the macro-region:

- Advanced skills in safety, environment and Security at sea (ASSESS) implemented only by Italian partners
- Blue Education for Sustainable Management of Aquatic Resources (BLUE SMART), implemented only by Croatian Partners

Finally, the European Commission has published a call for "**Maritime Spatial Planning**" (09/07/2018), aiming to support the development and implementation of Maritime Spatial Plans, in line with the objectives pursued in the framework of the MSP Directive. More specifically, this action intends to support member states in setting up maritime spatial plans and ensuring plans are coherent and coordinated across marine regions concerned.

Two projects relevant to the EUSAIR Pillar 1 are currently in progress, involving three countries of the macro-region. Under the call "Thematic Routes of Underwater Cultural Heritage" a small project of €107.305 is approved, being strongly relevant to the EUSAIR Pillar of "Sustainable Tourism", as the specific calls aims specifically at developing alternative tourism routes, based on the cultural product of the European seas. The project involves partners from Croatia, Slovenia and Montenegro.

## **Projects under HORIZON 2020**

In the previous years of the EUSAIR implementation the TSG/Pillar 1 Blue Growth suggested the possible submission of some project ideas under HORIZON 2020, although none of those projects was finally submitted or approved under the programme. Definitely, Blue Growth is a topic attracting the interest of numerous stakeholders around Europe; currently the programme project data base contains 168 projects relevant to Blue Growth, while the total budget of those projects exceeds € 84.4 million.

Those projects context is generally of horizontal nature, without a specific spatial reference; when a spatial reference exists, it is either much wider of the Adriatic-Ionian region or refers to other marine areas. Nevertheless, the majority of projects are undertaken by consortiums which comprise a large number of partners from all EU countries, but also non-EU ones in many cases. Although the EUSAIR EU countries are enough active in H2020 in most cases they represent a small part of a wide consortium which implements either a project of horizontal nature (e.g. projects on specific technologies relevant to Blue Growth) or a project focussed on a wider area (e.g. Mediterranean Sea). Consequently, a direct compliance of those projects with the Pillar 1 Blue Growth priorities cannot be documented, although some projects could be more relevant with the macro-regional strategy, involving enough EUSAIR country members and focusing on thematic areas relevant to the Pillar priorities.

HORIZON 2020 finances the **BLUEMED project**, a project involving all EUSAIR countries under the **BLUEMED Initiative**, set up in May 2014 in the framework of the European Strategy on Blue Growth. The adoption of the initiative started with the endorsement of the BLUEMED Vision Document at the EU Competitiveness Council in December 2014. The work carried out by nine European countries (Cyprus, Croatia, France, Greece, Italy, Malta, Portugal, Slovenia and Spain) with the support of the European Commission, led in October 2015 to the signature of the Venice declaration on Mediterranean Sea Cooperation - Launching a Strategic Research Marine and Maritime Research and Innovation Agenda for Blue Growth, the BLUEMED SRIA<sup>17</sup>.

The BLUEMED Project is a Coordination and Support Action for the exploitation of the BLUEMED Research and Innovation Initiative for blue jobs and growth in the Mediterranean area, with particular reference to the implementation of the BLUEMED Strategic Research and Innovation Agenda (SRIA). The ultimate objective is to support the activation of sustainable 'blue' innovation and growth, by fostering integration of knowledge and efforts of relevant stakeholders from EU Member States of the Mediterranean Basin, and then among these, other EU and non-EU Countries. To this end, the project

---

<sup>17</sup> The *BLUEMED Strategic Research and Innovation Agenda (SRIA)* is a document designing a shared pattern to foster blue growth in the Mediterranean area. It targets multiple stakeholders and end-users, involving all relevant players in the consolidation process, national ministries, regional authorities, research organizations, research infrastructures, academia, the private sector, non-governmental and international organizations and the public, thus engaging the quadruple helix. The BLUEMED SRIA addresses the crucial aspect of multilevel governance, bottom-up and horizontal (interregional and transnational), which must be taken into account when implementing its goals. The implementation plan will allow for different types of actions to be undertaken at different levels, with respect to geographical coverage, critical mass, joint funding, coordination of national/regional efforts or the use of EU instruments.

will set the scene for the effective coordination of marine and maritime research and innovation activities in the long term<sup>18</sup>.

The project is led by the Italian National Council of Research, while the consortium consists of partners from eight countries, among which Italy, Croatia, Greece, Slovenia and Montenegro. The total budget of the project is **€ 2.998.000**.

As previously mentioned, Emilia Romagna Region is involved in many HORIZON 2020 projects (23 projects of € 8.68 million).

### **LIFE+ programme**

The LIFE+ programme is the EU funding instrument for the environment and climate action created in 1992. The current funding period 2014-2020 has a budget of € 3.4 billion. The LIFE+ programme is divided into two sub-programmes, one for environment (representing 75% of the overall financial envelope) and one for climate action (representing 25% of the envelope).

- The sub-programme for environment finances projects in the fields of nature and biodiversity, environment and resource efficiency and environmental governance and information.
- The sub-programme for climate change covers projects in the fields of climate change mitigation, climate change adaptation, climate governance and information as well as strategic projects supporting countries or regions to implement the climate legislation.

The vast majority of the projects financed in 2014-20 period, especially those of the second sub-programme, but also the most of the first sub-programme are closely related with the priorities of the EUSAIR Pillar 3 – Quality environment, which covers not only interventions related to marine and terrestrial habitats, but also the topic of climate change.

The Pillar 1 Annual Monitoring Report 2020 refers seven projects (20.640.000 €) which could be considered more relevant to the EUSAIR Pillar 1 priorities, or as cross-pillar projects, in combination with Pillar 3. It is noted that all projects, except one, are implemented in a single EUSAIR country (mostly in Italy), although all of them in regions which are part of the EUSAIR area.

---

<sup>18</sup> BLUEMED Initiative is a potential source of funding of projects relative to Pillar 1 priorities. In the 7<sup>th</sup> Meeting of the TSG/Pillar 1 'Blue Growth', following the request by the BLUEMED Initiative to nominate a representative from each EUSAIR Pillar to act as a liaison between the EUSAIR and the Initiative, a member of TSG 1 was assigned to represent the EUSAIR Blue Growth Pillar to the BLUEMED Initiative

## **COSME programme**

COSME is the EU programme for the Competitiveness of Small and Medium-Sized Enterprises (SMEs). It runs from 2014 to 2020 with a planned budget of €2.3 bn. It offers different funding opportunities through calls for proposals (grants) and calls for tenders. The COSME programme addresses four main objectives:

- Ease access to finance for SMEs by providing loan guarantees and risk capital (access to finance);
- Help companies access new markets, within and outside the EU (access to markets);
- Create a business-friendly environment by reducing the administrative burden on SMEs (improving conditions for businesses);
- Encourage an entrepreneurial culture (encouraging entrepreneurship).

COSME beneficiaries can be either Small or Medium-Sized Enterprises (SMEs), as the main target of COSME or Intermediary organizations that support SMEs.

**COSME projects are carried out in all EUSAIR countries.** The majority of them refer to support to SMEs in order to improve the overall business environment, to access the markets, to incorporate innovative activities, or support to young entrepreneurship (ERASMUS programme for young entrepreneurs is funded through COSME), without focusing on specific sectors, that could be related to the EUSAIR. This does not exclude some SMEs funded from COSME to implement a project in the Pillar 1 priorities; further investigation is possible after the publishment of the list of beneficiaries.

It must be noticed that a concrete group of projects refer to the tourism sector; some of them are undertaken from institutions (chambers, universities or other authorities) of more than one EUSAIR countries, especially from Croatia and Italy. The relevance of some of those projects with the priorities of Pillar 4 – Sustainable Tourism could be considered. Furthermore, COSME in the framework of the support provided to SMEs has financed two networks and portals, which are already included in the Pillar 1 Knowledge Base, considered as databases which could provide the Pillar 1 programming and implementation.

## **2. AIM AND OBJECTIVES OF THE STUDY**

### **2.1. AIM AND OBJECTIVES OF THE STUDY**

The aim of the Ideal EUSAIR study is to create a document that includes the European Union’s major political and economic commitments and to assist the specification of the next programming period of Pillar 1 Flagships in the Adriatic - Ionian macro-region.

The study aims to provide the Thematic Steering Group 1 “Blue Growth” with a pool of potential project ideas that could constitute a basis for project development in the new programming period regarding the three Pillar topics: (a) Blue Technologies, (b) Fisheries and Aquaculture, and (c) Maritime and Marine Governance and Services. The study is going to provide a pool of project ideas, among which the TSG could select those considered more relevant with the Pillar priorities and undertake the necessary actions towards preparing mature and bankable projects.

In this framework, the **overall objective** of the study is to identify important information gaps, needs and opportunities to facilitate and foster the design and implementation of EUSAIR Flagship actions and projects in the Adriatic - Ionian macro-region.

The **specific objectives** include:

4. To assist the EU MS mandated institutions to the design of the new programming period 2021-2027 by adopting proposals, ideas and proposed projects aligned to meet the flagship priorities and overall objectives.
5. To assist the EUSAIR MS to fine-tune actions and to specify the practical procedures to design, launch and activate projects that will safeguard the implementation of the flagships in Pillar 1.
6. To assist the macro-region MS to consider streamlining their national Pillar 1 EUSAIR strategies in order to render them more specific to their priorities, needs and vision.

### **2.2. METHODOLOGY**

The IDEAL EUSAIR study:

- Reviews and updates the current status quo in relation to the Blue Growth identified Flagships;
- Focuses on specific categories of eligible actions taking into account best practices and the international and European experience in the relevant fields;

- Elaborates the SWOT analysis of EUSAIR Pillar 1, deepening the analysis per topic and country, whereas feasible;
- Proposes categories of project ideas;
- Proposes a list of indicative Blue Growth-related actions that could be implemented in the new programming period, taking into account the wider context of the European Blue Growth Policy, the new ESIF regulations, the Cohesion policy and other funding mechanisms and the EUSAIR approved Flagships for the programming period 2021-2027.

The **methodological approach** is inspired by the principles of targeting, combination of top-down and bottom-up approach, innovation, connectivity and visibility:

- **Targeting** means that value added in this project comes from depth and focus.
- **A combination of top-down and bottom-up approach** means that the starting point is the existing evidence at international level, and it is fed by the existing local, regional and national initiatives that emerge from the analysis on the ground.
- **Innovation** means that innovative approaches and best practices from other regions to the Adriatic-Ionian macro-region will be taken into account.
- **Connectivity** implies that local, regional, national and international networks will be linked to each other both in a cross-country and cross-sectorial perspective.
- **Visibility** refers to the ambition of the study to inform large numbers of Blue Growth stakeholders in the Adriatic-Ionian macro-region (AIM) about the possibilities and limitations and barriers that must be lifted to implement the flagships.

In this context, the study consists of four tasks.

**Task 1:** Mapping and Networking;

**Task 2:** Identifying network potential, categories of ideas and eligible actions per topic (Task 2.1: Blue Technologies, Task 2.2: Fisheries and Aquaculture, Task 2.3: Marine and Maritime Governance and Services);

**Task 3:** Focus groups;

**Task 4:** Roadmap and Final Report.

The aim and the objectives of the study as well as the methodological approach followed was presented by the Pillar 1 Monitoring and Evaluation Consultant in the 11<sup>th</sup> Thematic Steering Group Meeting (July 15, 2020), and approved by its members.



### **2.2.1. Task 1 - Mapping and Networking**

The first task was carried out in a three-month period (July 2020 – end of September 2020) and included the following activities:

- Fine tuning the overall methodological approach to design a coherent and comprehensive roadmap allowing to achieve the objectives of the study while carrying out all the agreed tasks.
- Desk research by the Pillar 1 M&E Consultant on the potential stakeholders per country representing the quadruple helix ties.
- Set up a network of contact points representing the quadruple helix ties, under the umbrella of TSG 1. For each topic and country, a list of experts was proposed with knowledge in each topic and a representation in the Academia, Industry, Government/Public Sector and Civil Society. In order to speed up information flow the list of experts was delivered to the TSG 1 members who had the opportunity to propose additional experts and/or institutions with relevant experience and expertise.
- Developing a mapping template to depict a comprehensive inventory of existing Blue Growth-related stakeholders in the EUSAIR area.
- Preparing and carrying out the inventory of universities, research institutions, companies, public authorities (central, regional, local), CLLDs, NGOs, in the EUSAIR countries.

The first task of the IDEAL EUSAIR study led to the establishment of a network of contact points in each country and topic, as well as an inventory of the Blue Growth institutions/stakeholders in the macro-region and their characteristics, presented in chapter 2 of this report. The mapping of the relevant stakeholders per topic and country is presented in detail in *Annex I* of this report.

### **2.2.2. Task 2 - Identifying network potential, categories of ideas and eligible actions per topic**

The second task took place between October – December 2020 and included the following activities:

- The design of the questionnaire for an online survey.
- The launch of the survey among the stakeholders, promoters and policy actors active in Blue Growth in the Adriatic- Ionian macro-region, identified in Task 1.
- The elaboration of the results and the set-up of a database with the responses.

Three questionnaires were designed, one for each topic. The questionnaire consists of four parts:

- Part A aims at the evaluation of the importance of the priorities identified for each topic under the relevant flagships;
- Part B aims at the mapping of the Strengths, Weaknesses, Opportunities and Threats (SWOT) for each topic at country level, whereas feasible;
- Part C aims at the assessment of specific areas for project proposals which are important per country;
- Part D aims at recording specific project ideas proposed by the stakeholders and experts that could be eligible for funding in the new programming period.

The survey was launched online in October 29, 2020 and completed by the end of November. A total number of **526 questionnaires** for all topics were delivered to the list of stakeholders identified in Task 1. The total number of responses amounts to **77**, with a **14.6%** average response rate for all topics, which under the current circumstances and taking into account the complexity of the various type of stakeholders and the COVID-19 restrictions, could be considered satisfactory. In particular:

In Task 1, 579 Institutions and stakeholders operating in the field of Blue Growth in the Adriatic - Ionian macro-region were recorded and classified according to the quadruple helix model in Government / Government Bodies (148), Academia/Educational and Research Bodies (250), Industry (99) and Civil Society (82). This recording includes a very wide category of bodies among which University and Research Institutions, Public Bodies, clusters of companies, research platforms, NGOs, CLLDs, Producer Organizations, Chambers, Regional and Municipal Authorities, etc.

Out of these 579, as e-mail addresses were not available for all, 526 questionnaires were sent as follows:

- For Topic 1 (Blue Technologies): 213 questionnaires have been sent; 19 replies received (8,92%).
- For Topic 2 (Fisheries and Aquaculture): 238 questionnaires have been sent; 38 replies received (15,97%).
- For Topic 3 (Marine and Maritime Governance and Services): 75 questionnaires have been sent; 20 replies received (26,67%).

Topic	Requests (individuals or stakeholders)	Answers	ALB	BIH	HRV	GRC	ITA	MNE	SRB	SVN	MKD
1	213	19 8,9%		1		9	6	1		2	
2	238	38 16,0%	2	1	5	11	17			1	1
3	75	20 26,7%	1		1	12	5		1		
	526	77 14,6%	3 3,9%	2 2,6%	6 7,8%	32 41,6%	28 36,4%	1 1,3%	1 1,3%	3 3,9%	1 1,3%

The analysis of the above Table shows that 89.6% of the experts that responded to the questionnaires come from the EU member states, while from the IPA countries the corresponding percentage amounted to 10.4%. This is considered a good balance as Blue Growth and its individual activities are much more developed in the EU countries and at the same time the views of the IPA countries were taken into account.

Overall, the representation of the responses is considered adequate for the following reasons:

- 1) As mentioned in the text of the proposal for the Ideal EUSAIR study, Task 2 activities included the following:
  - a. *Designing and launching a survey among stakeholders, promoters and policy actors active in Blue Growth in the AIM (the use of an online survey based on questionnaires prepared by the TSG1 M&E Consultant will be considered along with the traditional techniques of conducting surveys*
  - b. *Selecting and interviewing short-listed stakeholders.*

The above activities contributed to build a database from the collected responses which was further processed by the members of the M&E Consultant team and resulted in the preparation of a SWOT analysis per country. The most interesting approaches were discussed with the experts who responded and suggested various actions through individual interviews. This process also led to the formation of the individual focus groups

that took place under Task 3, selecting a representative team from each country and by category of stakeholders.

From the abovementioned it is highlighted that the survey process aimed to enrich the existing knowledge from the SWOT analysis of the macro-region (see *Deliverable No.3, 1<sup>st</sup> Annual Monitoring Report of Pillar 1, 2019*) and to confirm and update by country, where feasible, to shed light on some aspects and to capture the different priorities of each country. This process proved to be successful as it confirmed the findings recorded in D.3 and at the same time allowed the Consultant to highlight the priorities given by each country, as for example in the case of Topic 2 (Fisheries and Aquaculture) with a separate SWOT analysis (a similar approach was followed for all topics).

- 2) Even the opinion of a prominent single expert who participated in the focus groups with sufficient knowledge of his/her country is significantly more important from the point of view of the respondents (stakeholders) that emerged from the recording, as he would respond critically to the data collected and depicted in the framework of Task 3. This exercise proved to be very important, as in some cases the SWOT analysis findings of Task 2, when presented in the focus groups of Task 3, were corrected/amended by the country experts who participated in the focus group.
- 3) The stakeholders and experts who responded to the survey questionnaires have a long-standing experience in their subject and many of them were selected and invited to participate in the focus groups discussions. At the same time, the M&E Consultant team members themselves are experts with long-term experience in their field and with excellent knowledge of their subject and most have developed partnerships and/or implemented projects in many of the EUSAIR countries. Thus, the collection of 77 views that were first filtered and processed by the Consultant's team and by the focus groups experts is a safety valve and a strong methodological approach based on international practices of transnational studies.
- 4) It is worth mentioning that, with the exception of the mature field of Fisheries and Aquaculture, the collection of 19 responses for Blue Technologies and 20 responses for Maritime and Marine Governance and Services is not negligible as these are new areas mainly affecting coastal states and have little to no interest in land-locked countries or with limited access to maritime space.

The procedure followed for completing the questionnaires was as follows:

The questionnaires were originally sent on 29 October 2020. A reminder was sent on 06 November 2020 and then numerous personal contacts by phone and / or e-mail were made in order to confirm the receipt of the questionnaire and to request its completion again. The last answer was received on 01 December 2020, while the questionnaires remained accessible on-line for at least 10 days additionally. At the same time, the

EUSAIR Facility Point Greek Partner (EYSSA) was informed, as well as the Coordinators and members of TSG 1 for the realization of the relevant survey during the above period. Therefore, several promotional and motivation activities have been made to gather as much information as possible for the study.

It is worth noting that both from the Consultant's experience from other similar surveys and from the data of the online surveys website [www.surveymonkey.com](http://www.surveymonkey.com), external online surveys have an average response rate ranging from 10 to 15%, which shows that the responses received (14.6%) are above the average, despite the fact that this survey had to deal with a specialized questionnaire in the middle of the extraordinary conditions of the COVID-19 pandemic.

Undoubtedly, greater participation would be welcome and combined with on-site visits to the EUSAIR countries. However, the gathering of 77 views with satisfactory representation by country and category of stakeholders, in a period of pandemic with travel restrictions, certainly contributed to meet the needs of the Ideal EUSAIR study.

A database containing the survey results was set-up and the elaboration of the responses was completed by mid-December, 2020.

The questionnaires used for the online survey are illustrated in *Annex II*, while the results of the survey are illustrated in chapter 4 of this report.

### **2.2.3. Task 3 - Focus Groups**

The 3<sup>rd</sup> task concerned the organisation of focus groups by the Pillar 1 M&E Consultant and under the auspices of the EUSAIR Facility Point Greece (Ministry of Development and Investments).

In the context of the study **four thematic focus groups** were held virtually, covering all Pillar topics: (a) Blue Technologies, (b) Fisheries, (c) Aquaculture and (d) Maritime and Marine Governance and Services.

The focus groups took place during the period January - February 2021. More specifically:

- Maritime and Marine Governance and Services (19/1/2021)
- Aquaculture (27/1/2021)
- Blue Technologies (3/2/2021), and
- Fisheries (15/2/2021).

The focus groups were attended by participants from the EUSAIR member states, representing Universities, Research and Technology Institutes, Public Authorities (National and Regional), Private Enterprises, Non-Governmental Organisations, Fisheries Local Action Groups, etc. The focus groups were addressed to the experts that participated and responded to the online survey, however in the course, and taking into account that some of them were not available in the specific dates, new experts with similar knowledge and expertise were identified by the M&E Consultant and, finally, attended the meetings.

Furthermore, representatives from the European Commission (DG MARE), the Conference of the Peripheral Maritime Regions (CPMR), the Thematic Steering Group/Pillar 1 Coordinator (and Deputy Pillar Coordinator), the EUSAIR Facility Point Greece Project Partner Coordinator and team members from the Monitoring and Evaluation Consultant of the Adriatic-Ionian Macro-regional Strategy participated in the focus groups.

Each focus group consisted of **three phases**:

The **first** one concerned an introduction to the EUSAIR Pillar 1 and a brief explanation of the Flagships for the relevant topic in the programming period 2021-2027.

The **second** one concerned the presentation of the survey's results conducted in the context of the "Ideal EUSAIR" study in order to identify project priorities for the new programming period, and validation of SWOT analysis for the area,

In the **third** one, the participants focused on specific project ideas proposed by the stakeholders in the context of the survey, while they also had the opportunity to propose and discuss on additional project ideas for the Adriatic – Ionian macro-region that can be implemented in the 2021-2027 period by various stakeholders.

A summary of the focus groups' results is presented *in Annex III* of this report.

#### **2.2.4. Task 4 - Roadmap and Final Report**

The Task includes the drafting of the Final Report and constitutes the final outcome of the study. It contains:

- a) The full analysis of the survey including the focus groups' results.
- b) Key policy recommendations to provide operational guidelines for the embedment of the Blue Growth flagships into the operational programmes of the programming period 2021-2027.
- c) The project areas/categories of action and the proposed, by the stakeholders and experts, specific project ideas in each topic that could have a macro-regional impact, contribute to the implementation of flagships and reinforce cooperation among countries between the Blue Growth stakeholders.

### 3. MAPPING OF EUSAIR PILLAR 1 “BLUE GROWTH” STAKEHOLDERS

This chapter contains the review of the EUSAIR Pillar 1 “Blue Growth” stakeholders. According to the desk research carried out by the Pillar 1 M&E Consultant, there are currently 579 relevant stakeholders operating in the Blue Growth sector in the Adriatic – Ionian macro-region. Those stakeholders can be classified according to the quadruple helix model<sup>19</sup>, as follows: Government (148), Academia (250), Industry (99), and Civil Society (82). The majority of stakeholders come from the Academia (Universities and Research & Technological Institutes, 43%), followed by the Public Authorities (25.5%), while the Civil Society organisations have the lowest representation (14%). However, it should be mentioned that the numbers of stakeholders coming from the Industry and the Civil Society may be underestimated, as there were difficulties in identifying all the relevant stakeholders in those fields (particularly in the Industry) in the EUSAIR countries, especially in the non-EU members.

The majority of stakeholders come from the EU Member States (83.5%) and especially from Italy (34.3%) and Greece (27.2%), followed by Croatia (15%) and Slovenia (6.4%). This is expected, taking into account that the EU countries have a more developed Blue Growth sector compared to the non-EU members. The non-EU countries represent 16.5% of the total, as follows: Albania (5.6%), Montenegro (5.3%), Bosnia and Herzegovina (2.9%), Serbia (2%), and North Macedonia (0.3%).

The following sections present the state of play as regards the Blue Growth-related stakeholders in the Adriatic-Ionian macro-region. The mapping of the relevant stakeholders per topic and country is presented in detail in *Annex I* of this report.

Figure 1. Mapping of Blue Growth-related stakeholders in the Adriatic-Ionian macro-region (per country & quadruple helix approach)

All Topics	ALB	BIH	GRC (EU)	HRV (EU)	ITA (EU)	MNE	SRB	SVN (EU)	MKD	TOTAL	%
<b>Government</b>	4	3	37	24	55	14	1	10	0	<b>148</b>	<b>25,56%</b>
<b>Academia</b>	19	9	59	39	78	13	8	23	2	<b>250</b>	<b>43,18%</b>
<b>Industry</b>	3	2	39	13	38	0	0	4	0	<b>99</b>	<b>17,10%</b>
<b>Civil Society</b>	7	3	23	14	28	4	3	0	0	<b>82</b>	<b>14,16%</b>
<b>TOTAL</b>	<b>33</b>	<b>17</b>	<b>158</b>	<b>90</b>	<b>199</b>	<b>31</b>	<b>12</b>	<b>37</b>	<b>2</b>	<b>579</b>	

<sup>19</sup> Quadruple helix model: 1) Public authorities (national, regional, local), 2) Academia (Universities, Research & Technological Institutes), 3) Industry (private companies), and 4) Civil society (NGOs, Associations, etc).

Figure 2. Mapping of Topic 1 – Blue Technologies stakeholders (per country & quadruple helix approach)

Topic 1	ALB	BIH	GRC (EU)	HRV (EU)	ITA (EU)	MNE	SRB	SVN (EU)	MKD	TOTAL	%
<b>Government</b>	2	1			5	3	1	2		<b>14</b>	<b>6,48%</b>
<b>Academia</b>	9	3	25	18	34	3	2	11		<b>105</b>	<b>48,61%</b>
<b>Industry</b>	1	1	29	8	29			4		<b>72</b>	<b>33,33%</b>
<b>Civil Society</b>	4	2	7	3	4	2	3			<b>25</b>	<b>11,57%</b>
<b>TOTAL</b>	<b>16</b>	<b>7</b>	<b>61</b>	<b>29</b>	<b>72</b>	<b>8</b>	<b>6</b>	<b>17</b>	<b>0</b>	<b>216</b>	

Figure 3. Mapping of Topic 2 – Fisheries and Aquaculture stakeholders (per country & quadruple helix approach)

Topic 2	ALB	BIH	GRC (EU)	HRV (EU)	ITA (EU)	MNE	SRB	SVN (EU)	MKD	TOTAL	%
<b>Government</b>	2	1	35	23	47	7		6		<b>121</b>	<b>43,68%</b>
<b>Academia</b>	7	6	20	13	29	4	5	6	2	<b>92</b>	<b>33,21%</b>
<b>Industry</b>	1		2	3	8					<b>14</b>	<b>5,05%</b>
<b>Civil Society</b>	3	1	13	10	23					<b>50</b>	<b>18,05%</b>
<b>TOTAL</b>	<b>13</b>	<b>8</b>	<b>70</b>	<b>49</b>	<b>107</b>	<b>11</b>	<b>5</b>	<b>12</b>	<b>2</b>	<b>277</b>	

Figure 4. Mapping of Topic 3 – Maritime and Marine Governance and Services stakeholders (per country & quadruple helix approach)

Topic 3	ALB	BIH	GRC (EU)	HRV (EU)	ITA (EU)	MNE	SRB	SVN (EU)	MKD	TOTAL	%
<b>Government</b>		1	2	1	3	4		2		<b>13</b>	<b>15,12%</b>
<b>Academia</b>	3		14	8	15	6	1	6		<b>53</b>	<b>61,63%</b>
<b>Industry</b>	1	1	8	2	1					<b>13</b>	<b>15,12%</b>
<b>Civil Society</b>			3	1	1	2				<b>7</b>	<b>8,14%</b>
<b>TOTAL</b>	<b>4</b>	<b>2</b>	<b>27</b>	<b>12</b>	<b>20</b>	<b>12</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>86</b>	

### 3.1. BLUE TECHNOLOGIES STAKEHOLDERS

There are currently 216 relevant stakeholders that deal with the Topic 1 – Blue Technologies in the EUSAIR countries, which can be classified, according to the quadruple helix model, as follows: Government (14), Academia (105), Industry (72), and Civil Society (25). The majority of stakeholders come from the Academia (Universities and Research & Technological Institutes, 49%), followed by the Industry (companies, 33%).

Stakeholders per country are mainly from EU Member States (82.8%) and especially from Italy (40.2%) and Greece (34.1%), followed by Croatia (16.2%) and Slovenia (9.5%). The non-EU countries represent 17.2% of the total, as follows: Albania (43.2%), Montenegro (21.6%), Bosnia and Herzegovina (19%) and Serbia (16.2%).



Although there is heterogeneity in the number of stakeholders and the type of entities per country, some trends can be highlighted. Despite the high potential impact of Blue Technologies on socio-economic characteristics of the macro-region, the maturity level of these technologies is not the same in all countries under study. Research in the field of Blue technologies is fairly developed in Italy and Greece but also in Croatia and Slovenia to a lesser extent, including a wide range of relevant stakeholders. However, in the non-EU countries there are only few actors active in the sector, and they usually are not specialized in Blue Technologies, as they rather deal with broader topics such as energy, climate and environment, natural resources, engineering and transport, taking into account that 2 out of 4 countries are landlocked (i.e. Serbia) or with very limited sea space and completely enclosed by internal waters of other country (i.e. Bosnia and Herzegovina), so interest in developing Blue Technologies and exploration activities is limited. Countries with a less maturity level in the sector (Albania, Montenegro, Bosnia and Herzegovina, and Serbia) include more public authorities and universities/research centres in their stakeholders, whereas countries with a higher maturity level (especially Italy and Greece, but also Croatia and Slovenia) mention, apart from universities and research institutions, more private entities, such as companies and clusters/technology platforms, playing an important role in the innovation in the macro-region. This proves the maturity as well as the potential of the market, as in countries where more opportunities have been identified, private entities already have a market share. Apart from companies, a great part of mentioned organisations is not exclusively linked to Blue Technologies, but are working in Blue Growth activities at a whole or include Blue Technologies.

### **3.2. FISHERIES AND AQUACULTURE STAKEHOLDERS**

The desk research has identified a total number of 277 relevant stakeholders that deal with the Fisheries and Aquaculture in the Adriatic – Ionian macro-region. Public authorities represent the 44% of those stakeholders, followed by Academia (33.2%) and Civil Society organisations (18%). The lowest participation is observed in the Industry (5%), however, this figure is underestimated as abovementioned.

Stakeholders per country are mainly from EU Member States (86%) and especially from Italy (39.4%) and Greece (25.5%), followed by Croatia (16.4%) and Slovenia (4.4%). The non-EU countries represent 14% of the total, as follows: Albania (4.7%), Montenegro (4.0%), Bosnia and Herzegovina (2.9%), Serbia (1.8%) and North Macedonia (0.7%).

There is heterogeneity in the number of stakeholders in Fisheries and Aquaculture and the type of entities per country. However, some trends can be highlighted. The maturity and the size of these sectors is not the same in all countries of the Adriatic Ionian macro-region. The sectors are mature and well developed in Italy (107 stakeholders) and Greece (70 stakeholders), but also in Croatia (49 stakeholders). The other countries follow, with Albania and Slovenia (13 and 12 stakeholders respectively), whereas in the non-EU countries (Montenegro, Bosnia and Herzegovina, Serbia and North Macedonia)

there are only few actors active in the relevant sectors (11, 8, 5 and 2 stakeholders respectively). Serbia and North Macedonia are landlocked countries, whereas Bosnia and Herzegovina have a very small sea corridor, so any efforts should focus in inland water bodies. Countries with a less extended fisheries and aquaculture production (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia and Slovenia) include more public authorities and universities/research centres in their stakeholders, whereas countries with a higher production (especially Greece and Italy, but also Croatia), apart from universities and research institutions, include more private entities, such as companies, companies representative organisations (federations, Unions etc.) and clusters/technology platforms, playing an important role in the innovation in those countries as well as in the macro-region.

### **3.3. MARITIME AND MARINE GOVERNANCE AND SERVICES STAKEHOLDERS**

There are currently 86 relevant stakeholders that deal with the Topic 3 – Maritime and Marine Governance and Services in the EUSAIR countries, which can be classified, according to the quadruple helix model, as follows: Public authorities (13), Academia (53), Industry (13), and Civil Society (7). The vast majority of the stakeholders represent the universities and research institutes (61.6%), followed by the Government and Industry with equal shares (15% for each category respectively).

The classification per country reveals that the relevant stakeholders are mainly from EU Member States (77.8%) and especially from Greece (31.1%) and Italy (23.4%), followed by Croatia (13%) and Slovenia (10.4%). The non-EU countries represent 22,2% of the total, as follows: Montenegro (13%), Albania (5.2%), Bosnia and Herzegovina (2.6%) and Serbia (1,3%).

## 4. ANALYSIS OF THE SURVEY RESULTS

### 4.1. IDENTITY OF THE SURVEY

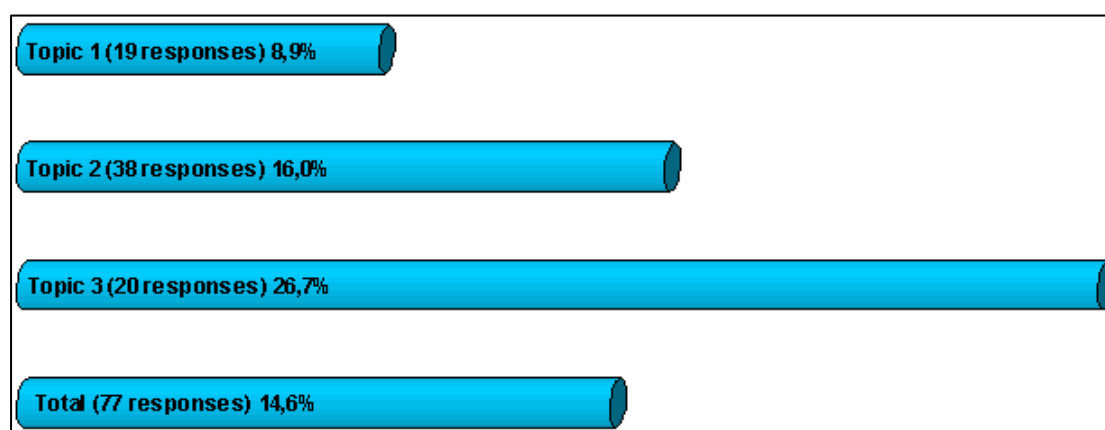
As mentioned in section 1.2 of this report, a total of **526 questionnaires** were successfully sent via e-mail to the EUSAIR stakeholders identified in Task 1 of the study. More specifically:

- Topic 1 (Blue Technologies): 213 questionnaires;
- Topic 2 (Fisheries and Aquaculture): 238 questionnaires;
- Topic 3 (Maritime and Marine Governance and Services): 75 questionnaires.

The total number of responses amounts to **77**, with a **14.6%** average response rate for all topics, which under the current circumstances and taking into account the complexity of the various type of stakeholders and the COVID-19 restrictions, could be considered satisfactory. The response rate per topic is illustrated in Figure 5.

The highest response rate is identified in Topic 3 - Maritime and Marine Governance and Services (26.7%), followed by Topic 2 – Fisheries and Aquaculture (16.0%), while Topic 1 – Blue Technologies presents the lowest response rate (8.9%).

Figure 5. Response rate per Topic



Source: EUSAIR Pillar I M&E Consultant's survey 2020

The vast majority of responses come mainly from the EU Member States (90%) and especially Greece & Italy (78%), while the non-EU countries provided the 10% of the total responses.

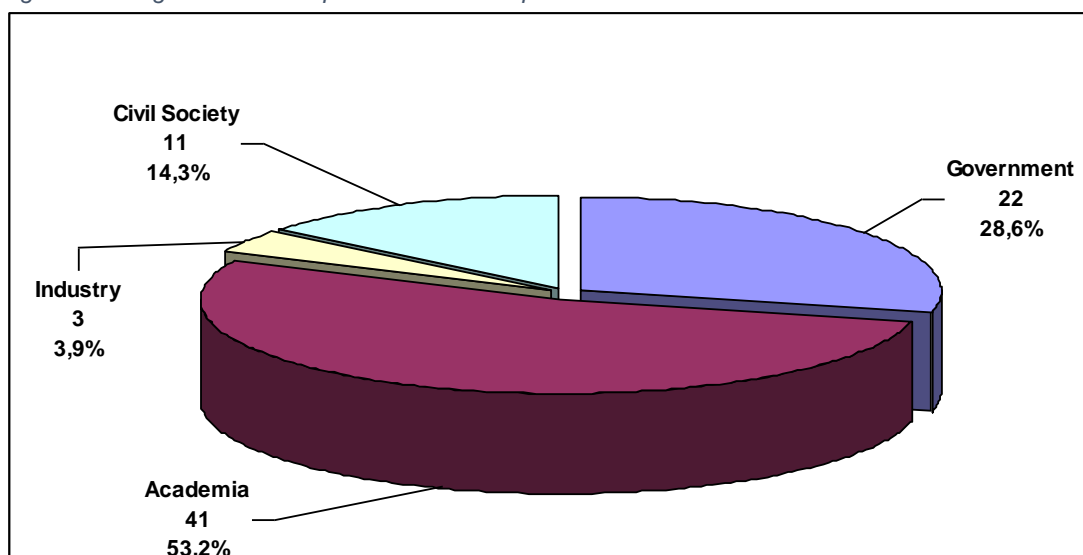
Figure 6. EUSAIR Survey Data

Topic	Questionnaires sent	Responses	ALB	BIH	HRV (EU)	GRC (EU)	ITA (EU)	MNE	SRB	SVN (EU)	MKD
1	213	19 8,9%		1		9	6	1		2	
2	238	38 16,0%	2	1	5	11	17			1	1
3	75	20 26,7%	1		1	12	5		1		
	526	77 14,6%	3 3,9%	2 2,6%	6 7,8%	32 41,6%	28 36,4%	1 1,3%	1 1,3%	3 3,9%	1 1,3%

Source: EUSAIR Pillar I M&E Consultant's survey 2020

The categorization of respondents for all topics is illustrated in Figure 7, based on the quadruple helix approach. The majority of responses (53.2%) come from the Academia (Universities and Research Institutes), followed by the public authorities (national, regional, local governments) with 28.6% and the civil society representatives (14.3%). The private sector (enterprises) has the lowest participation (3.9%).

Figure 7. Categorization of respondents for all Topics

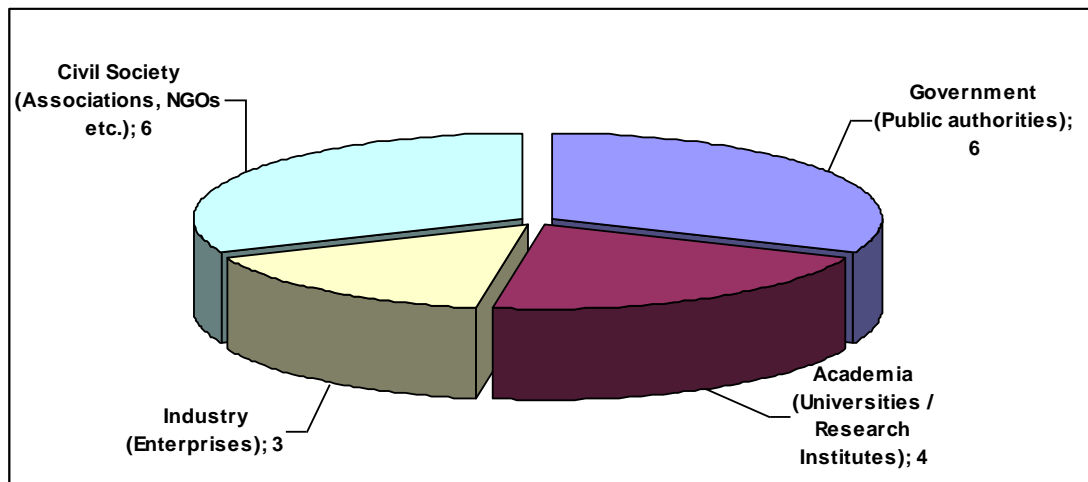


Source: EUSAIR Pillar I M&E Consultant's survey 2020

As regards Topic 1 – Blue Technologies, the majority of responses come from the public authorities and civil society organisations (31.5% for each category respectively), followed by Academia (Universities and Research Institutes) with a percentage of 21%.

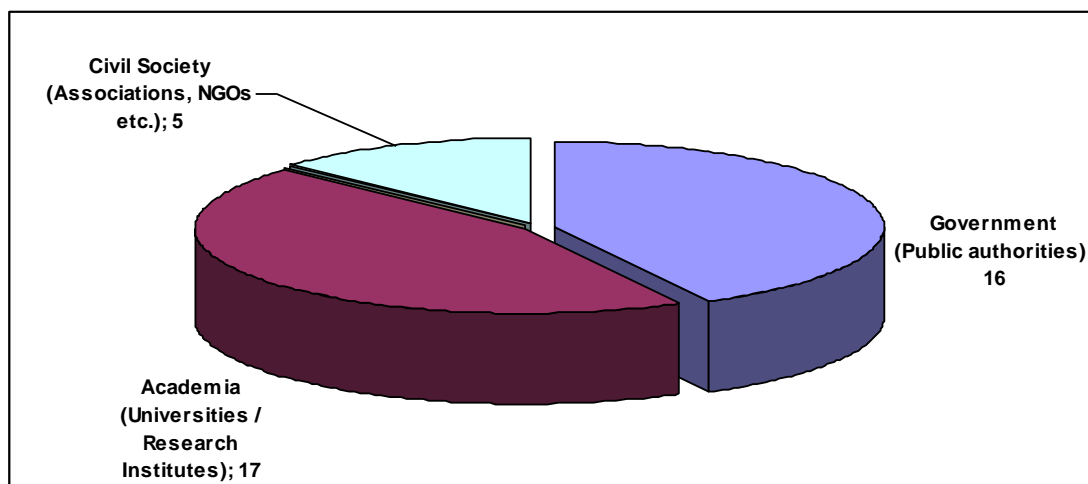
The Topic 2 – Fisheries and Aquaculture respondents come mainly from the Academia (45%) followed by the public authorities (42%), while in Topic 3 - Marine and Maritime Governance and Services all of the responses are provided by Academia (100%) with no representation of the other categories.

Figure 8. Categorization of respondents – Topic 1



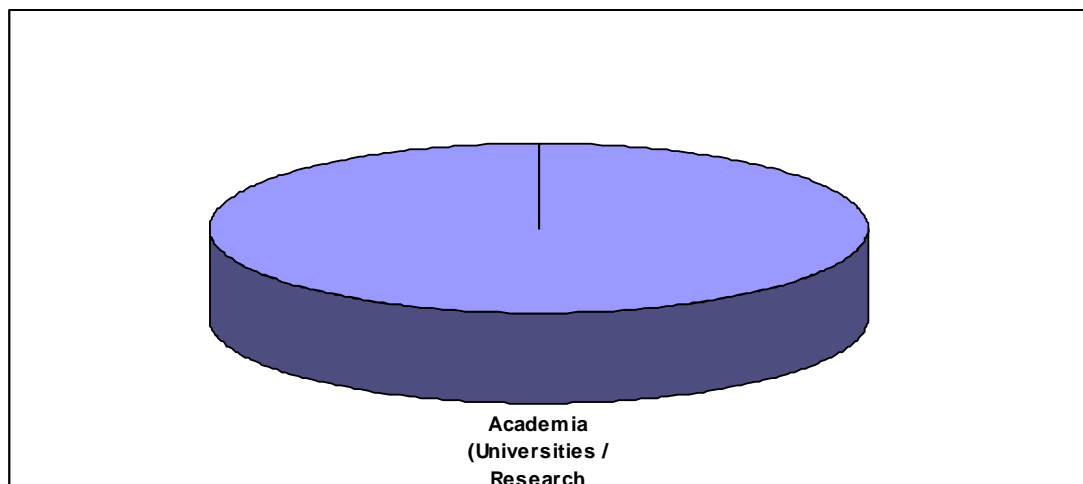
Source: EUSAIR Pillar I M&E Consultant's survey 2020

Figure 9. Categorization of respondents – Topic 2



Source: EUSAIR Pillar I M&E Consultant's survey 2020

Figure 10. Categorization of respondents – Topic 3



Source: EUSAIR Pillar I M&E Consultant's survey 2020

The analysis of the survey results is presented by topic in the next sections of this chapter. The analysis is divided in three main fields, in particular the proposed priorities by the stakeholders for the programming period 2021-2027, the validation of the SWOT analysis in the EUSAIR area and the proposed project areas/categories of action under which specific potential projects serving the Blue Growth objectives could be implemented in the macro-region.

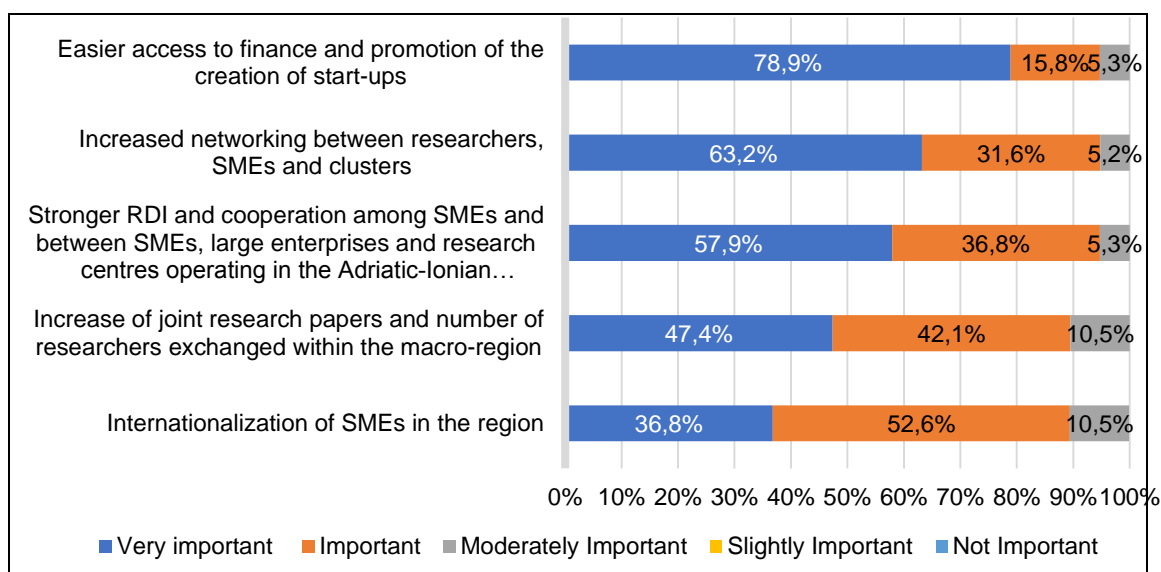
## **4.2. BLUE TECHNOLOGIES**

### **4.2.1. Proposed priorities by the stakeholders in the Blue Technologies sector for the programming period 2021-27**

The survey revealed that priorities for Topic 1 for the new programming period should focus to:

- Easier access to finance and promotion of the creation of start-ups (78.9% Very Important-VI, 15.8% Important-I and 5.3% Moderately Important-MI);
- Increased networking between researchers, SMEs and clusters (63.2%VI, 31.6%I, and 5.2%MI);
- Stronger RDI and cooperation among SMEs and between SMEs, large enterprises and research centers operating in the macro-region (57.9% VI, 36.8%I, and 5.3%MI);
- Increase of joint research papers and number of researchers exchanged within the macro-region (47,4% VI, 42.1%I and 10.5 MI), and
- Internationalization of SMEs in the region (36.8%VI, 52.6 I, and 10.5%MI).

Figure 11. Proposed priorities by the stakeholders in the Blue Technologies sector for the programming period 2021-2027



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 19 responses)

#### 4.2.2. SWOT Analysis

Despite the high potential impact of Blue Technologies on socio-economic characteristics of the macro-region, the maturity level is generally low for most of the EUSAIR countries. This is explained by the fact that the Blue Technologies sector in the EUSAIR countries is at an early stage of development and R&D activities are expected.

Research is fairly developed in the **EU Member States** of the macro-region, and especially in Italy and Greece, but also in Croatia and Slovenia, having adequate expertise in the field, something which is also indicated by the higher number and wide range of stakeholders in those countries. The survey participants from both Italy and Greece as well as Croatia highlighted the great physical potential of the countries with extended coastlines for further exploitation of Marine Renewable Energy-MRE and Marine Technologies applications, and the high unexplored biodiversity, as Mediterranean is regarded as one of the world's most important locations in marine biodiversity, for further development of blue biotech activities. In Slovenia, the limited available space of coastal area, as the length of the coast is only 46 Km, may limit further exploitation of maritime technologies. The maturity of the sector in the EU MS is proved by the higher number of companies dealing with the topic, especially in Italy, and Greece but also in Croatia and Slovenia in a lesser extent.

However, there are still many common drawbacks/ weaknesses identified by stakeholders, such as the lack/insufficient support in terms of funding and marketing operations, lack of specific national policies under which blue technologies could be developed, fragmentation of the sector, lack of established blue biotech value chains, weak presence of R&D in small & large companies (Italy & Croatia), lack of collaboration

in science-industry-policy makers (Slovenia), as well as undefined or inadequate legislation. The geomorphological particularities and deep waters of the Mediterranean Sea that are directly interconnected to increased maritime technologies investment costs were also identified as disadvantages.

In **non-EU countries** there are only very few research groups and networks active in the sector, and they usually are not specialized in Blue Technologies, as they rather deal with broader topics such as energy, water, environment and engineering, natural resources, etc. Furthermore, the lack of national knowledge & expertise in non-EU countries in the maritime technology sector, the lack of infrastructures and prioritization of the sector, as well as the non-historical tradition in this field (e.g. Bosnia and Herzegovina, and Serbia) limit the interest for development. Typical example is Bosnia and Herzegovina, as the GDP from the maritime area is less than 1 percent of total GDP of the country. Even though in Montenegro there is a low expansion of the maritime technologies field. Very limited blue biotech research activities are also observed in all non-EU MS, however there is no industry or SMEs which would generate the need for research, which is also proved by the mapping of stakeholders. Opportunities for development of the sector, as the sector is still in its infancy especially in the non-EU countries, as well as opportunities for the development of Blue Technologies in inland waters for landlocked countries (e.g. Serbia) or for countries with limited sea space (e.g. Bosnia and Herzegovina) were also highlighted by all participants in the survey.

Most of the countries perceive the development of Blue Technologies as an opportunity for development of a Green Deal, a socially inclusive model of sustainable development and job creation, while safeguarding marine and coastal environments and securing a healthy sea environment. The EU through its various funding programmes and mechanisms is a key financing player supporting the development of Blue Technologies in the macro-region.

The Blue Technologies sector is still at an early stage but its potential to maximize sustainable economic growth and employment and create business opportunities provides a strong driver of the sector. However, various threats to the development of the sector still exist and include among others economic crisis, including COVID-19 pandemic, intense competition, lack of funding from the R&D sector into business, inadequate/lack of legislation under which Blue Technologies could be developed, inadequate training/insufficient specialized human resources, bureaucracy, sea-use conflicts due to lack of MSP, as well as lack of infrastructure and prioritization of the sector and interest from the governments for certain countries. Also, further studies are needed to analyze interactions between Blue Technologies and marine ecosystems. The Blue Technologies sector is moving forward fast. There is a question whether the countries in the macro-region will follow and/or improve capacity or fall behind.

Given that the sector is still in emergence, working on the different applications of Blue Technologies, R&D is still a key enabling driver of their further advancement and



commercialization. At European level, additional funding instruments should be earmarked to provide access to low cost financing for pilot projects, increasing funding for research and innovation and dealing with the lack of financing options for scale up.

The lack of experience in the maritime technology sector and qualified technical staff could be addressed due to long-term experience in the shipbuilding, offshore and maritime industries in most countries. Cross-cutting issues of marine aquaculture with blue biotech. Marine aquaculture is a well-established activity with a strategic role in the national economies & leading role in the EU market, which can facilitate and support the development of blue biotechnology in the macro-region. Adequate experience, scientific know-how, as well as long standing university education (e.g. bachelors and master degrees) are needed, targeting more specifically blue technologies. Knowledge transfer and cooperation among EUSAIR countries are required.

The following Tables present the SWOT Analysis of the first topic of EUSAIR Pillar 1 at country level. The Ideal EUSAIR study findings verify the SWOT analysis of Pillar 1, as carried out through desk research by the Pillar 1 Monitoring and Evaluation Consultant and presented in the Pillar 1 Annual Monitoring Report 2019.

### Albania

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Interest on the sector;</li> <li>• (Very few) Research groups &amp; networks active in the sector;</li> <li>• Participation in projects that deal with the topic of blue technologies;</li> <li>• Good geographical position of the country; lot of opportunities for research.</li> </ul>	<ul style="list-style-type: none"> <li>• No historical tradition in maritime technology sector;</li> <li>• There is no industry or SMEs which would generate the need for research;</li> <li>• Geomorphological particularities &amp; deep waters that are directly interconnected to increased marine technologies investment costs.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> <li>• Availability of resources</li> <li>• The blue technologies sector is not a developed economic sector in the country, as it is still in its infancy. There are opportunities for development.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of funding;</li> <li>• Lack of national knowledge &amp; expertise;</li> <li>• Lack of infrastructure &amp; prioritization of the sector;</li> <li>• Competition for marine space with sectors such as port development, shipping, fishing, coastal tourism, etc.;</li> <li>• Further studies are needed to analyse interactions between blue technologies and coastal and marine biodiversity.</li> </ul>

### Bosnia & Herzegovina

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Existing institutions with skilled staff &amp; equipment for molecular research;</li> <li>• Diverse marine wild life; lot of opportunities for research.</li> </ul>	<ul style="list-style-type: none"> <li>• Very limited sea space, so interest in developing Blue Technologies and exploration activities is limited;</li> <li>• The role of maritime areas in the total national economy is very small;</li> <li>• No historical tradition in maritime technology sector;</li> <li>• There is no industry or SMEs which would generate the need for research.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> <li>• Realistic basis for knowledge &amp; technology transfer in BB;</li> <li>• Existing institutions with skilled staff &amp; equipment for molecular research already participating in various international collaborations;</li> <li>• Opportunities for development of blue technologies in inland waters.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of funding;</li> <li>• Lack of interest from the government;</li> <li>• Lack of infrastructure &amp; prioritization of the marine technology sector;</li> <li>• Lack of coordination between different sectors in marine technology;</li> <li>• Lack of any body in charge of BB.</li> </ul>

### Croatia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Extensive experience in traditional maritime sectors (e.g. shipping, shipbuilding, offshore industry);</li> <li>• Cross-cutting issues of marine aquaculture with Blue bio-technology;</li> <li>• Existing expertise &amp; R&amp;D activity;</li> <li>• High specialized scientists and engineers &amp; skilled workforce;</li> <li>• Research infrastructures;</li> <li>• Great physical potential for developing Marine Renewable Energy (MRE) applications (e.g. wind, sea water thermal energy-Sea water heat pumps, salinity gradient);</li> <li>• Extended coastline and diverse marine wild life; lot of opportunities for research.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack/insufficient support in terms of funding &amp; marketing operations;</li> <li>• There are no specific national policies under which Blue technologies and BB could be developed;</li> <li>• Fragmented sector;</li> <li>• Lack of established blue bio-technology value chains;</li> <li>• Undefined legislation;</li> <li>• Weak presence of R&amp;D in small &amp; large companies;</li> <li>• Lack/insufficient collaboration between companies and R&amp;D institutions;</li> <li>• High costs of deep-water exploration;</li> <li>• Weak exploitation of marine resources.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Participation in EU funded programmes;</li> <li>• Opportunity for development of the Green Deal;</li> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> <li>• Availability of resources;</li> <li>• Innovative applications;</li> <li>• Upgrade of infrastructures;</li> <li>• BB links with other national sectors such as pharmaceutical &amp; agri-food.</li> </ul>	<ul style="list-style-type: none"> <li>• Economic crisis, including COVID-19 pandemic;</li> <li>• Competition from non-EU countries in Blue technologies, rival EU states in BB;</li> <li>• Lack of funding/ Limited scale-up opportunities;</li> <li>• Insufficient specialized human resources;</li> <li>• Conflict of interest with other MEAs, such as port development, shipping, coastal tourism, fisheries;</li> <li>• Interactions between marine technologies &amp; ecosystem.</li> </ul>

### Greece

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Extensive experience in traditional maritime sectors (e.g. shipping, shipbuilding);</li> <li>• Cross-cutting issues of marine aquaculture with Blue bio-technology;</li> <li>• Existing expertise &amp; longstanding R&amp;D activity;</li> <li>• Highly-specialized scientists &amp; engineers;</li> <li>• Cutting edge research infrastructure including university &amp; private laboratories;</li> <li>• Numerous publications in international scientific journals &amp; conferences by Greek universities &amp; research institutes;</li> <li>• Great physical potential for developing MRE applications (e.g. wind, wave, solar);</li> <li>• The increasing domestic consumption especially in the summer due to tourism favor the development of MRE applications and/or</li> </ul>	<ul style="list-style-type: none"> <li>• Lack/insufficient support in terms of funding.</li> <li>• Lack of experience management &amp; marketing capability. The dependence upon SMEs for high risk investment to translate R&amp;D results into a marketable product for commercialization</li> <li>• No comprehensive &amp; and specific policies exists, under which Blue technologies and BB could be developed;</li> <li>• Fragmented sector;</li> <li>• Lack of established blue bio-technology value chains</li> <li>• Time-consuming &amp; complex licensing system;</li> <li>• Absence of clusters in the sector, lack of strategic information in SMEs.</li> <li>• BB is considered rather “invisible” by key players. Little understanding of the sector;</li> </ul>

<p>desalination;</p> <ul style="list-style-type: none"> <li>Extended coastline and diverse marine wild life; lot of opportunities for research.</li> </ul>	<ul style="list-style-type: none"> <li>Geomorphological particularities &amp; deep waters that are directly interconnected to increased marine technologies investment costs;</li> <li>Insufficient monitoring systems, especially in marine protected areas, for safeguarding biodiversity &amp; the health of marine ecosystems.</li> </ul>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>Participation in EU funded programmes;</li> <li>Opportunity for development of the Green Deal;</li> <li>New boost for investments;</li> <li>Employment opportunities &amp; development of new skills;</li> <li>Plant-based energy &amp; water alternatives for insular communities;</li> <li>Load balancing in insular smart micro-grids;</li> <li>Digitalization &amp; blockchain applications;</li> <li>Valorization of fisheries &amp; aquaculture by-products. Sustainable use of marine biomass &amp; enhancement of waste utilization in the fishing/aquaculture chain for industrial applications;</li> <li>BB links with other strong sectors such as pharmaceutical &amp; agri-food.</li> </ul>	<ul style="list-style-type: none"> <li>Economic crisis, including COVID-19 pandemic;</li> <li>Increased competition in the international environment particularly from non-EU countries in marine technologies sector;</li> <li>Rival EU States in BB;</li> <li>Lack of funding/From the R&amp;D sector into business/Scale up problems;</li> <li>Not enough training in the sector;</li> <li>Absence of critical mass</li> <li>Bureaucracy;</li> <li>Lack of cooperation in certain groups, institutions, increased competition makes it hard to share knowledge;</li> <li>Wrong perception of the development of cluster associations;</li> <li>Conflict of interest &amp; lack of coordination in country level &amp; MSP.</li> <li>Rise of public opposition (e.g. development of wind farms);</li> <li>Lack of robust assessments of maximum carrying capacity of the natural and physical environment.</li> </ul>

### Italy

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<ul style="list-style-type: none"> <li>Well advanced traditional sectors, such as shipbuilding &amp; repairs, and offshore industry;</li> <li>Cross-cutting issues of marine aquaculture with Blue bio-technology;</li> <li>High biotechnology &amp; chemistry expertise, and availability of qualified personnel in marine technologies;</li> <li>Strong R&amp;I capacity both private &amp; public;</li> <li>Considerable academic experience;</li> <li>Training network well established;</li> <li>Good collaboration rate between research &amp; industry;</li> <li>Wide range of company sizes;</li> <li>High amount of marine biomass, high volume of shellfish production, and high competences on biomass valorization;</li> </ul>	<ul style="list-style-type: none"> <li>Lack/insufficient support in terms of funding &amp; marketing operations;</li> <li>Lack of clear legislation under which Blue technologies and BB could be developed;</li> <li>Fragmented sector;</li> <li>Lack of established blue bio-technology value chains;</li> <li>Low level of commitment at institutional level;</li> <li>Slow introduction of disruptive technologies;</li> <li>Weak presence of new marine high-tech companies;</li> <li>Weak presence of R&amp;D in small companies;</li> <li>In some regional mainly family-owned micro-SMEs not willing to go international nor to diversify towards new sectors/opportunities;</li> <li>Weak exploitation of marine resources;</li> </ul>

<ul style="list-style-type: none"> <li>• Great physical potential for developing MRE applications;</li> <li>• Extended coastline and diverse marine wild life; lot of opportunities for research.</li> </ul>	<ul style="list-style-type: none"> <li>• Geomorphological particularities &amp; deep waters that are directly interconnected to increased marine technologies investment costs.</li> </ul>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>• Participation in EU funded programmes;</li> <li>• Opportunity for development of the Green Deal;</li> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> <li>• Innovative applications;</li> <li>• Upgrade of infrastructures;</li> <li>• Large availability of resources;</li> <li>• Territorial opportunities;</li> <li>• Strong presence of SMEs with fast response capabilities;</li> <li>• Availability of by-products and waste from the fish food industry;</li> <li>• Maritime spatial plans favor the further development of the sector;</li> <li>• Links with other strong national sectors such as pharmaceutical &amp; agri-food.</li> </ul>	<ul style="list-style-type: none"> <li>• Economic crisis, including COVID-19 pandemic;</li> <li>• Intense competition from non-EU countries in Blue technologies, rival EU states in BB;</li> <li>• Lack of common regulation among MED countries;</li> <li>• Lack of funding/ Limited scale-up opportunities;</li> <li>• Bureaucratic procedures in creating new companies &amp; start-ups;</li> <li>• Bureaucracy to obtain concessions, in the field of RES;</li> <li>• Weakness in incentivizing start-ups;</li> <li>• Ageing of ready-to implemented technologies because of the lack of commitment at institutional level (lack of public procurements to implement available technologies)</li> <li>• Insufficient specialized human resources;</li> <li>• Lack of competitiveness;</li> <li>• Conflicts among the different marine users (e.g. nature conservation, tourism, fishing, oil &amp; gas, maritime navigation, etc.);</li> <li>• Interactions between marine technologies &amp; ecosystem.</li> </ul>

### Montenegro

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<ul style="list-style-type: none"> <li>• Extensive experience in traditional maritime sectors (e.g. shipbuilding &amp; ship repair);</li> <li>• Interest on the sector;</li> <li>• (Low) Expansion of the marine technology sector;</li> <li>• (Very limited) Blue biotech research activities;</li> <li>• Good geographical position of the country; lot of opportunities for research.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no industry or SMEs which would generate the need for research, which is proved by the low number of stakeholders;</li> <li>• Weak data transparency;</li> <li>• Weak transparency of the Environmental Impact Assessment (EIA) studies.</li> </ul>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> <li>• Availability of resources</li> <li>• The blue technologies sector is not a developed</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of funding;</li> <li>• Lack of national knowledge &amp; expertise;</li> <li>• Lack of infrastructure &amp; prioritization of the sector;</li> <li>• Competition for marine space with sectors such</li> </ul>

<p>economic sector in the country, as it is still in its infancy. There are opportunities for development.</p>	<p>as port development, shipping, coastal tourism, etc.;</p> <ul style="list-style-type: none"> <li>• Potential ecological risks for the development of the blue technologies sector;</li> <li>• Inability to react properly/independently in case of emergencies.</li> </ul>
--	---

### Serbia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• (Very limited) Blue biotech research activities;</li> </ul>	<ul style="list-style-type: none"> <li>• Landlocked country, so interest in developing Blue Technologies and exploration activities is very limited;</li> <li>• No historical tradition in maritime technology sector;</li> <li>• There is no industry or SMEs which would generate the need for research;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> <li>• Opportunities for development of blue technologies in inland waters.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of funding;</li> <li>• Lack of interest from the government;</li> <li>• Lack of infrastructure &amp; prioritization of the sector.</li> </ul>

### Slovenia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Existing expertise in the sector;</li> <li>• Cross-cutting issues of marine aquaculture with Blue bio-technology;</li> <li>• Blue biotech is recognized as an area of interest;</li> <li>• Existing institutions with skilled staff &amp; equipment for BB research;</li> <li>• Scientists &amp; researchers are well connected through networks (e.g. Horizon projects, COST Actions, e.g. Ocean4Biotech, Interreg projects);</li> <li>• Sea water thermal energy has got great potential for use of blue energy with heat pumps;</li> <li>• There is great potential to fill in the niche, and the country to become a leader in the blue biotech.</li> </ul>	<ul style="list-style-type: none"> <li>• The limited available space of coastal area may limit further exploitation of blue technologies;</li> <li>• Lack/insufficient support in terms of funding &amp; marketing operations;</li> <li>• There is lack of policies and national strategies favoring the blue biotech &amp; marine technologies;</li> <li>• Inadequate legislation;</li> <li>• Legal bottlenecks for BB implementation;</li> <li>• Lack of collaboration in science-industry-policy makers.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Participation in EU funded programmes;</li> <li>• Opportunity for development of the Green Deal;</li> <li>• New boost for investments;</li> <li>• Employment opportunities &amp; development of new skills;</li> </ul>	<ul style="list-style-type: none"> <li>• Economic crisis, including COVID-19 pandemic;</li> <li>• Rival EU states in BB;</li> <li>• Lack of funding/ Limited scale-up opportunities;</li> <li>• Lack of prioritization of the sector;</li> </ul>

<ul style="list-style-type: none"> <li>• Innovative applications;</li> <li>• Upgrade of infrastructures;</li> <li>• Blue biotech is a promising future field that could address societal challenges;</li> <li>• BB links with other national sectors such as pharmaceutical &amp; agri-food.</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient specialized skills;</li> <li>• Competition for coastal space with sectors such as port development, fishing, shipping and coastal tourism;</li> <li>• Interactions between marine technologies &amp; ecosystem.</li> </ul>
---	--

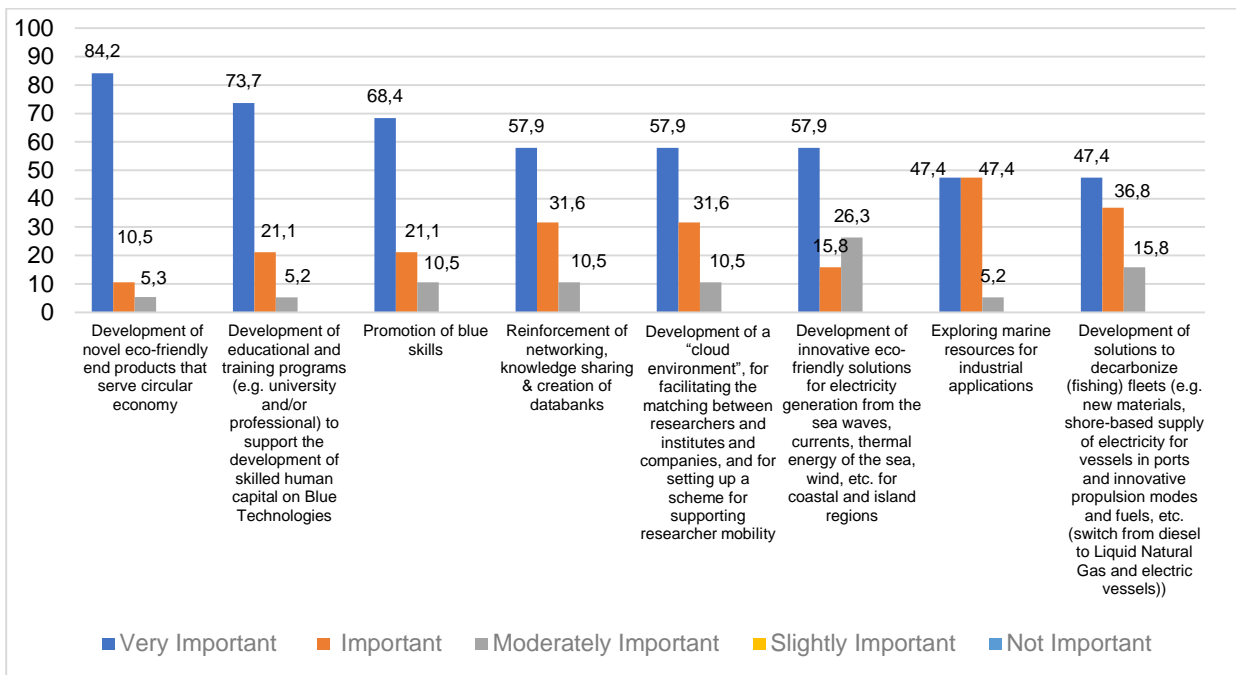
#### **4.2.3. Proposed project areas by the stakeholders in the Blue Technologies sector for the programming period 2021-2027**

The survey revealed that the project areas for Topic 1 must focus on the following actions:

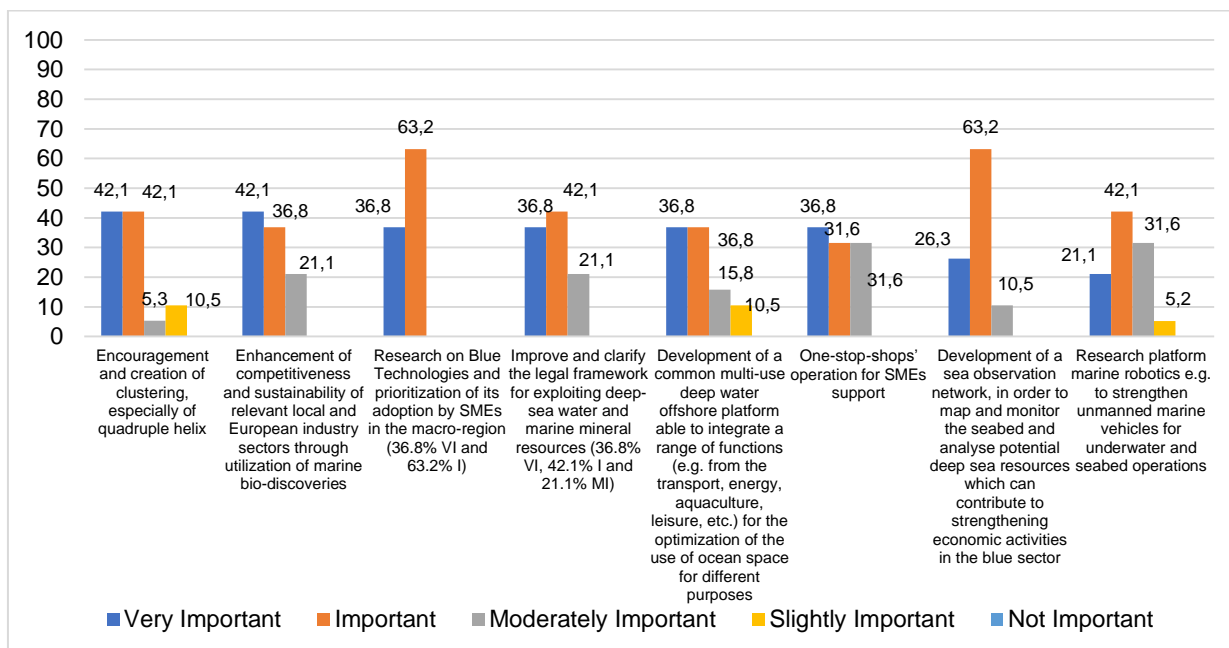
- Development of novel eco-friendly end products that serve circular economy (84.2% VI, 10.5% I, and 5.3% MI)
- Development of educational and training programs (e.g. university and/or professional) to support the development of skilled human capital on Blue Technologies (73.7%VI, 21.1%I and 5.2% MI)
- Promotion of blue skills (68.4% VI, 21.1%I, and 10.5 MI)
- Reinforcement of networking, knowledge sharing & creation of databanks (57.9% VI, 31.6% I and 10.5%MI)
- Development of a “cloud environment”, for facilitating the matching between researchers and institutes and companies, and for setting up a scheme for supporting researcher mobility (57.9% VI, 31.6% I, and 10.5% MI)
- Development of innovative eco-friendly solutions for electricity generation from the sea waves, currents, thermal energy of the sea, wind, etc. for coastal and island regions (57.9% VI, 15.8% I, and 26.3 MI)
- Exploring marine resources for industrial applications (47.4% VI, 47.4%I and 5.2%MI)
- Development of solutions to decarbonize (fishing) fleets (e.g. new materials, shore-based supply of electricity for vessels in ports and innovative propulsion modes and fuels, etc. (switch from diesel to Liquid Natural Gas and electric vessels)) (47.4% VI, 36.8% I and 15.8%MI)
- Encouragement and creation of clustering, especially of quadruple helix (42.1% VI, 42,1% I, 5.3% MI and 10.5 Slightly Important-SI)
- Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries (42.1% VI, 36.8% I and 21.1% MI)
- Research on Blue Technologies and prioritization of its adoption by SMEs in the macro-region (36.8% VI and 63.2% I)
- Improve and clarify the legal framework for exploiting deep-sea water and marine mineral resources (36.8% VI, 42.1% I and 21.1% MI)

- Development of a common multi-use deep water offshore platform able to integrate a range of functions (e.g. from the transport, energy, aquaculture, leisure, etc.) for the optimization of the use of ocean space for different purposes (36.8% VI, 36.8% I, 15.8% MI and 10.5% SI)
- One-stop-shops' operation for SMEs support (36.8% VI, 31.6% I and 31.6% MI)
- Development of a sea observation network, in order to map and monitor the seabed and analyze potential deep-sea resources which can contribute to strengthening economic activities in the blue sector (26.3% VI, 63.2% I and 10.5% MI)
- Research platform marine robotics e.g. to strengthen unmanned marine vehicles for underwater and seabed operations (21.1% VI, 42.1% I, 31.6% MI, and 5.2 SI).

Figure 12. Proposed Project Areas by the stakeholders in the Blue Technologies sector for the programming period 2021-2027







Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 19 responses)

### 4.3. FISHERIES AND AQUACULTURE

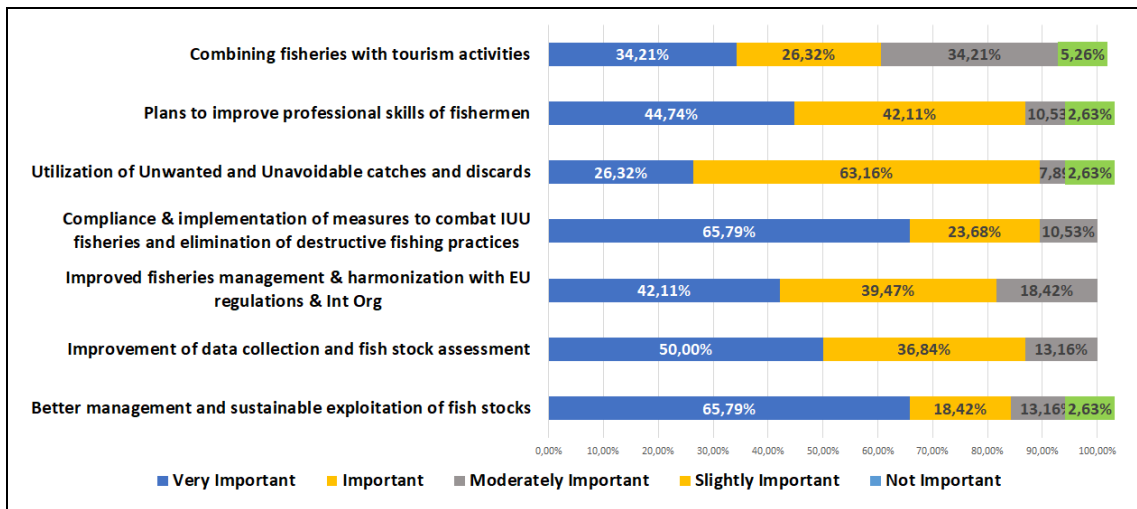
Regarding the second topic of the EUSAIR Pillar 1 Blue Growth, the survey results are presented separately for Fisheries and Aquaculture.

#### 4.3.1. Proposed priorities by the stakeholders in the Fisheries and Aquaculture sector for the programming period 2021-2027

##### Fisheries

The responses in the survey revealed the following priorities, as depicted in the following figure. Better management and sustainable exploitation of fish stocks along with compliance & implementation of measures to combat IUU practices are considered as very important (65,79%), whereas the combination of fisheries with tourism activities and the valorization of Unwanted and Unavoidable catches and discards ranks lower with 34,21% and 26,32% of the responses considering them as very important. However, the Utilization of Unwanted and Unavoidable catches and discards is considered as very important and important by the 89,47% of the replies, scoring very high together with the measures to combat IUU fisheries. The replies revealed that combining fisheries with tourism activities is very important and important by the 60,53% of the replies. None of the priorities considered as not important.

Figure 13. Proposed priorities by the stakeholders in the Fisheries sector for the programming period 2021-2027



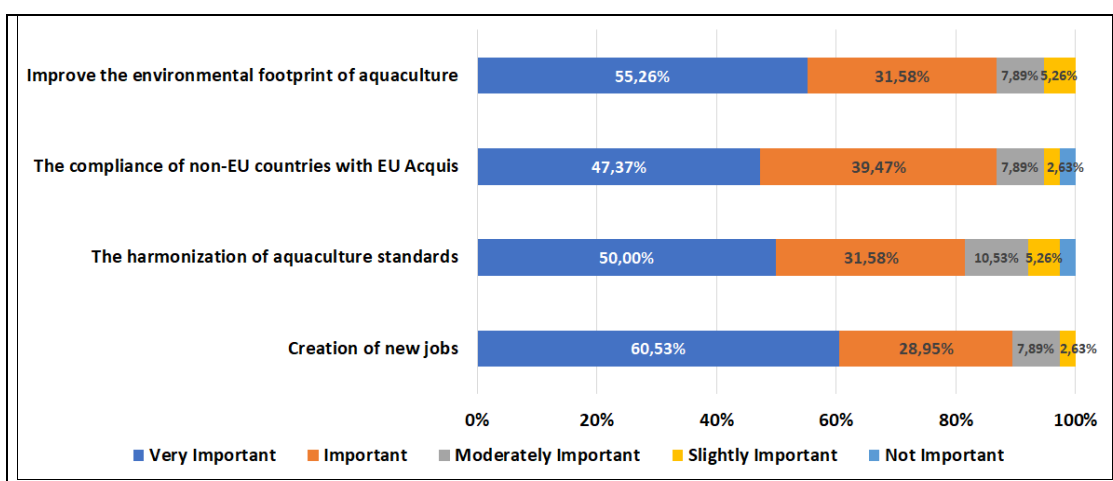
Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 38 responses)

## Aquaculture

The responses in the survey revealed the priorities depicted in the following figure for the aquaculture sector.

All priorities are considered as very important and important (81,58% to 89,47%). The creation of new jobs is considered by 89,47% as very important and important, followed by the improvement of the environmental footprint of aquaculture and compliance of non-EU countries with EU Acquis (86,84%) and the harmonization of aquaculture standards follows with 81,58%.

Figure 14. Proposed priorities by the stakeholders in the Aquaculture sector for the programming period 2021-2027



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 38 responses)

### **4.3.2. SWOT Analysis**

The survey and the focus groups organised by the Pillar 1 M&E Consultant in the framework of the Ideal EUSAIR study verify the conclusions of the SWOT analysis presented by the Consultant in the 1<sup>st</sup> Annual Monitoring Report for Pillar 1 “Blue Growth” (2019).

Further to the above analysis, through the survey, the literature review, the individual expert discussions and the focus group discussion, a deeper SWOT analysis at country level has been implemented in an effort to further diagnose the specific needs and priorities of each country in the Adriatic-Ionian macro-region.

The Adriatic-Ionian macro-region covers nine countries: four EU Member States (Croatia, Greece, Italy and Slovenia) and five non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia). In addition, North Macedonia and Serbia are landlocked countries, whereas Bosnia and Herzegovina has a very limited access to the sea. The above reality creates apparent discrepancies and reasonable differences in the priorities that each country sets for the forthcoming programming period. It also reflects the huge differences in the Adriatic-Ionian macro-region in terms of capacity of the involved stakeholders, resources available, financial incentives and prioritisation to the targets.

#### **Fisheries**

The fisheries SWOT analysis per country is in agreement with the SWOT analysis in the Adriatic-Ionian macro-region. There are important differences between the EU and the non-EU countries and this is further enhanced by the fact that the macro-region includes 2 landlocked countries (Serbia and North Macedonia) as well as a country with limited access to the sea (Bosnia and Herzegovina). The existing gaps between countries with and without access at the sea are apparent and the strategy must design and implement actions that will allow to all of them to boost the competitiveness of coastal and riparian areas and the creation of quality and sustainable local jobs and at the same time protect the habitats and ensure sustainability.

**Fisheries and fish stocks:** The strong element of the Adriatic-Ionian macro-region (AIM) is without doubt the marine area. The AIM has a very strong fisheries segment (42% of the EU fleet) with an overwhelming majority belonging to the small-scale fisheries (coastal or artisanal). Larger vessels include mainly purse seiners and trawlers that operate also close to the coastal area and to depths of up to 250 meters. Fisheries is part of the tradition of the AIM countries. The biodiversity, coupled with the geomorphology and the numerous islands and the rich freshwater component with numerous lakes and rivers constitutes the macro-region very promising for the development of fisheries activities. However, the fleet is old with an average of 43 years old fleet in Albania, 36 years old in Croatia, 37 years old in Greece, 34 years old in Italy, 37 years old in Montenegro and 39 years old in Slovenia (FAO/GFCM data 2018) and therefore with low

energy efficiency leading to high operational costs. In addition, there is often shortage of equipment and necessary infrastructure in the existing fishing ports and landing sites. Depletion of marine resources is a recognised issue as from out of approximately 450 fish species in the sea basin, 120 are threatened by overexploitation<sup>20</sup>. Therefore, there is an opportunity for improving selectivity, infrastructure at fishing ports, fish landing sites and shelters in the context of improved safety and working conditions, improved product traceability and increased energy efficiency.

**Fisheries management:** Despite the existence of several marine protected areas, established for the conservation of marine biodiversity (species, habitats), the interaction between fishing activity and the protected species and habitat types are only partially examined and evaluated. Illegal fishing still exists in the macro-region targeting threatened species like red corals, the noble pen shell or fan mussel *Pinna nobilis* etc and there is little research experience in further improving the selectivity of fishing gears, state of marine and inland resources and management of the marine and inland aquatic environment and space. There is an apparent difficulty in managing fish stocks due to the great diversity of catches and fishing methods / gears.

A number of issues appear as threats, including increased competition of fisheries products from both EU and non-EU countries, uncontrolled amateur fishing, overexploitation from other metier and/or foreign vessels, the global economic crisis and its impact on the socio-economic fabric coupled with the high cost of operating the fishing fleet, low access to credit, high input cost (fuel), fishermen aging, growing number of Invasive Alien Species, climate change and growing conflict for maritime space with other users (aquaculture, offshore energy production etc).

Therefore, there is a need for improvement of knowledge, monitoring and surveillance, closer cooperation with scientific/research institutions and promotion of horizontal integration (among sectors) in scientific cooperation to identify fisheries at risk. The macro-region must support the sustainable development of the EU candidate and potential candidate countries in accordance with the reformed European Common Fisheries Policy, the identification and mapping of sensitive ecosystems (*Posidonia oceanica* and other marine phanerogams, coralligenous and mærl communities) and nursery grounds in order to protect and restore marine biodiversity and habitats, enhance research and implementation of more sustainable management systems, bring innovative solutions on fishery practices to minimise the production of litter and to elaborate clean-up measures and scientific cooperation for elaboration of a contingency plan, reduce litter production from fisheries activities and enhance recycle/reuse practices and use of new materials and establish and enhance R&D&I platforms.

**Fisheries standards and practices:** The macro-region is characterised by the limited involvement of fishermen in organizations needed to promote the sector (e.g. Producer

---

<sup>20</sup> Commission Staff Working Document, SWD(2020) 57 final/2.4.2020 (<https://www.adriatic-ionician.eu/wp-content/uploads/2020/04/EUSAIR-SWD-2020.pdf>)

Organizations), the lack of eco-labelling for fishery products, limited promotion and information programmes, lack of harmonization of standards across the macro-region and the gap between EU and IPA countries in order to comply with EU rules and standards. Therefore, there are plenty of opportunities for the promotion of eco-innovation in the design of more selective fishing gears and other innovative actions that reduce the effects of fishing on the environment and there is funding available from EMFAF to support small-scale coastal fisheries and vessels up to 24 meters, to finance the replacement or modernisation of engines of fishing vessels to increase energy efficiency and reduce CO<sub>2</sub> emissions. It will allow also promote generational renewal in the profession by supporting the first acquisition of vessels by young fishermen and through scientific cooperation to enhance the branding for sustainable, fresh and good quality fishery products.

**Seafood products:** A strength of the AIM macro-region is the proximity to the EU mainstream markets due to the AIM geographic location and the increasing domestic consumption especially in the summer due to tourism. The high-quality products and the partly modernised infrastructure in fishing ports, allow quick unloading and safeguard a higher quality of products and integration with processing units. There is of course a long distance between islands fishing grounds and main urban centres, especially when the weather is bad during the winter but also due to lack of adequate intra-regional links whereas the unfair competition from neighbouring non-EU countries is always a problem as well as the increased competition from other (EU/non-EU) markets. The fact is that there is an opportunity for sustainable development due to the growing consumer demand for fisheries products and increased consumption through changing dietary habits and increased demand for consumption of seafood, taking into consideration both marine and freshwater fisheries.

**Fisheries skills:** The low level of education in the fisheries human capital (especially in the older generations), insufficient training, low level of adaptation to new fisheries concepts / activities, certainly do not facilitate modern management of fisheries resources and productivity development. This leads also to low level of cooperation between fishermen, fisheries scientists and environmental organizations, a fact that needs to be reversed. A characteristic in the larger vessels is that they often operate with foreign crews (e.g. Egyptians in the Greek trawlers and purse seiners), as there is lack of local personnel willing to work, a sign of the difficult working conditions.

From the SWOT analysis for fisheries, it is evident that **policy choices must support the achievement of the objectives of the Common Fisheries Policy**, to foster the implementation of the Union's maritime policy and to strengthen international ocean governance. Policy choices must include:

- a) The sustainable development of fisheries in coastal areas
- b) The conservation and management of natural resources through cross-border regional cooperation or at sea-basin level;

- c) The conservation of marine resources by bottom up approach, with the participation of fishermen in the decision-making process;
- d) The promotion of eco-innovation in the design of more selective fishing gears and other innovative actions that reduce the effects of fishing on the environment;
- (e) The improvement of knowledge, monitoring and surveillance;
- (f) The harmonization of standards across the macro-region;
- (g) The improvement of skills and capacity in order to comply with EU rules and standards;
- (h) The increase of the added value of local seafood value chains;
- (i) The development of market intelligence and more transparent marketing and processing;
- (j) The diversification of activities for the fishermen;
- (k) The improvement of fishing vessels' performance (in terms of resource efficiency), data collection and fish stock assessment;
- (l) The identification of existing technologies, best practises and their potential for use in the fishing sector.

**Main results expected for the Fisheries sector include:**

- ◆ Better management and sustainable exploitation of fish stocks;
- ◆ Improvement of data collection and fish stock assessment for better management as well as for forecasting and anticipating effects of climate change on fisheries and aquaculture;
- ◆ Improved fisheries management by assisting EUSAIR states to comply with EU regulations and recommendations of international organizations in the frame of multilateral agreements;
- ◆ Improvement of compliance and implementation of measures to combat illegal, unreported and unregulated fisheries and elimination of destructive fishing practices in the macro region with regard to the conservation of coastal and marine ecosystems.
- ◆ Utilisation of unwanted and unavoidable catches and discards;
- ◆ Long-term plans to improve professional skills of fishermen including diversification of their activities within the blue economy sectors considering the harmonization of remuneration systems and social safety nets for policies aimed at reducing fishing effort;
- ◆ The reduction of the costs of marine monitoring.

**Fisheries contribution to cultural and local development:** Italy with pesca-tourism and ichthyotourism is a pioneer in the A-I macro-region in this novel activity that contributes to the diversification activities of the professional fishermen and younger entrepreneurs, taking advantage of the excellent climatic conditions that favour tourist attraction. Greece and Croatia followed whereas the other Countries in the macro-region have not developed yet such activities, despite the fact that these can be developed in

both marine and fresh water bodies. Lack of funds (own contribution) and economic support for vessel adjustment is an issue in the non-EU Countries and so does the potential conflict of legislation (for embarking into a professional fishing vessel) as well as the lack of training for fish tourism and ichthyotourism for fishermen. There are many opportunities for enhancement of such income diversification activities in relation to fish-tourism, ichthyotourism and environmental protection/education for maintenance of the populations in island and rural areas, by offering job opportunities for youth and women, cooperation with local tour operators and traditional and cultural heritage protection.

The following Tables present the SWOT analysis per country after the above described procedure.

### Albania

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Abundant water resources in the country, starting from the coast (sea) up to the rivers and lakes (natural &amp; artificial);</li> <li>• GFCM Member, adopting these policies</li> </ul>	<ul style="list-style-type: none"> <li>• Abundant water resources in the country, starting from the coast (sea) up to the rivers and lakes (natural &amp; artificial);</li> <li>• No data collection correctly implemented;</li> <li>• No control and monitoring programme implemented;</li> <li>• No scientific research on fisheries and stock assessment;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Diversification of activities in relation to fish-tourism, ichthyotourism and environmental protection/ education;</li> <li>• Building a wholesale fish market in each fish harbour of country for adding value of fish caught and meeting the UE standards on fish products to be sold in EU;</li> <li>• Giving proper importance to fisheries science research and management based on scientific results;</li> <li>• Minimization of IUU fishing as a good way of knowing the human pressure on fish resources;</li> <li>• Albania has abundant water resources; Only few of them are exploited.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of vision for sustainable fisheries by the policymakers and lack of supportive policies to meet the necessary measures;</li> <li>• Lack of professional staff (in central and local level) with knowledge of the sector;</li> <li>• Without good data collection and consequently not good analyses and policies of a sector;</li> <li>• Scientific institutions are collapsing due to lack of funds.</li> </ul>

### Bosnia and Herzegovina

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• High-quality water;</li> <li>• Endemic salmonid species.</li> </ul>	<ul style="list-style-type: none"> <li>• The laws on fisheries are outdated and not harmonized;</li> <li>• Lack of coordination at different stakeholder levels;</li> <li>• Influence of local communities and regulations;</li> <li>• No appropriate working conditions &amp; equipment of fish guards;</li> <li>• Regular monitoring of water quality and genetic monitoring of fish fauna are missing.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Developing a prosperous subsector of sport fishing;</li> <li>• Generating employment and further income through sport fishing tourism;</li> <li>• Branding consumption of endemic species;</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of national strategy on fisheries;</li> <li>• Qualitative and quantitative damages of the fish fauna;</li> </ul>

### Croatia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Exceptional natural resources and pleasant Mediterranean climate;</li> <li>• Tradition in fisheries; valuable and unique tangible and intangible Cultural Heritage;</li> <li>• High quality of sea cleanliness in the coastal area; untouched natural habitats;</li> <li>• High quality of fishery products with offers throughout the year;</li> <li>• Biodiversity of economically important species, Variety of fishing techniques;</li> <li>• Positive synergy of fishermen, fishing cooperatives and traders for the common good and promotion of new values and products;</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of fishing infrastructure (fishing shelters, moorings and unloading ports);</li> <li>• Low level of profitability of small fishing vessels;</li> <li>• High operational costs;</li> <li>• Low level of profitability of small fishing vessels;</li> <li>• Illegal fishing; Non-compliance of traditional tools with European regulations (non-recognition by the EU of traditional Croatian tools);</li> <li>• Insufficient diversification initiatives and low level of promotion of local fisheries products;</li> <li>• Aging of fishermen;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• High quality fishery products, placing most of the quality catch through the tourist offer</li> <li>• Polyvalent fishing vessels - a combination of fishing and tourism;</li> <li>• Market interest in fishery and indigenous products</li> <li>• Strengthening the quality of the fishery products</li> <li>• Existence of indigenous fishery products</li> </ul>	<ul style="list-style-type: none"> <li>• Marine pollution, climate and biological changes in the sea;</li> <li>• The inability to sustainably manage marine resources;</li> <li>• Environmental disasters; Influence of invasive species;</li> <li>• Pollution from tourism;</li> <li>• The disappearance of traditional fishing;</li> <li>• Unprofitable business due to rising operating costs (especially fuel) and low cost of first sale of fishery products - therefore fishing is seen as an unpopular, less attractive job for younger generations;</li> <li>• Loss of traditional skills and knowledge;</li> <li>• Organizational, economic and legal problems present in the fresh fish market</li> <li>• Uncertainty from the imposed Regulations;</li> </ul>



**Greece**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Largest fleet of fisheries sector in the EU. Longest coastline in the EU;</li> <li>• Employment of a significant number of professionals and employees in related sectors;</li> <li>• Large variety of fisheries products (species richness);</li> <li>• Locality, small scale, tradition;</li> <li>• SSF in the form of family activity whose income is supplemented by other agricultural or tourism activities enhancing local employment in periods of crisis;</li> <li>• Strong consumer preference for fresh indigenous product, especially in the summer months (high demand);</li> <li>• 17.000km of coastline and 3.000 islands including multiple bays with great water quality and climatic conditions that can fully support the sector;</li> <li>• Increase in environmental awareness and interest among the fisheries stakeholders.</li> <li>• Easy access to European and foreign markets;</li> </ul>	<ul style="list-style-type: none"> <li>• Age of the fishing fleet with often obsolete equipment that impacts the income and conditions of fishing activity (safety - hygiene);</li> <li>• Old, inadequately trained fishermen difficulty adapting to new fishing concepts/activities;</li> <li>• Insufficient possibility of marketing and promotion of fishery products;</li> <li>• Increased operating costs and adverse economic environment;</li> <li>• Present weakness in assessing the state of fish stocks;</li> <li>• Overexploitation of resources;</li> <li>• Loose compliance of fishermen to rules and regulations;</li> <li>• Unregistered recreational fisheries, often illegal; Lack of controls and fines imposition;</li> <li>• Lack of compensation system from the state to the fishers regarding incidental captures and fishing gear damage by cetaceans;</li> <li>• Low level of cooperation with scientists</li> <li>• Very old national legal framework;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Cooperation with scientific/research institutions and promotion of horizontal integration (among sectors) in scientific cooperation;</li> <li>• Improve fisheries management by promoting more selective gears;</li> <li>• Improving and renewing the age pyramid of professional fishermen and strengthening the entry of young fishermen into the profession;</li> <li>• Withdrawal of boats with priority on the older and less equipped;</li> <li>• Strengthen research and implement more sustainable management systems to identify endangered species;</li> <li>• Enhance tourism in island and coastal areas in order to increase consumption of indigenous species;</li> <li>• Explore new fisheries resources (mesopelagic species);</li> <li>• Combine fisheries with other activities to increase fishermen's' income (e.g fish-tourism);</li> <li>• Utilization of Edible Alien Species (promote them among the fisheries stakeholders and market);</li> <li>• Fishing gear modification to reduce incidental catches of vulnerable species;</li> </ul>	<ul style="list-style-type: none"> <li>• Poor state of fish stocks;</li> <li>• Overexploitation from other metier and/or foreign non-EU vessels;</li> <li>• Risks of restructuring of the productive fabric of coastal areas and islands due to the declining course of the fisheries sector;</li> <li>• Marine pollution and climate change;</li> <li>• Competition from recreational/ amateur/sport fishing;</li> <li>• Shortage of crew/fishermen for trawler and purse seiner Fishery vessels;</li> <li>• Pollution of coastal areas by domestic and industrial wastewater resulting in negative impacts on sensitive ecosystems and young stages of marine life;</li> <li>• Low renewal rate of professional fishermen/boat crew members (majority of acting fishermen &gt;50 years);</li> <li>• Alien Invasive Species;</li> <li>• IUU Fishing;</li> </ul>

## Italy

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Adriatic Sea very important fishery area with many different species of fish, molluscs and crustaceans;</li> <li>• High professionalism and experience of the employees;</li> <li>• High quality of products with presence of a diversity of fishing gears;</li> <li>• Good national market demand of fisheries products;</li> <li>• Diversification in small scale and deep-water fisheries;</li> <li>• High level of competence in fishery science;</li> <li>• Multispecies, Multigear, Sustainable (as SSF), Country with long coastline;</li> <li>• Well established interconnection with tourism and other diversification potentials;</li> <li>• Tradition (presence of some traditional crafts e.g. Feluche Sicilia strait), high cultural, social, ethnographic values associated to fishing;</li> </ul>	<ul style="list-style-type: none"> <li>• Old fishing fleet, high energy consumption, poor sustainability;</li> <li>• Fishing tools unsuitable for sustainable fishing, damage to the sea bottom;</li> <li>• Presence of problems related to the protection, use and accessibility of coasts and the marine environment;</li> <li>• Limited presence of actions aimed at the univocal recognition of local productions, few consumer fish markets;</li> <li>• Marginal roles of women in the fishing enterprise with poor representation and low interest in participation</li> <li>• Unfair competition with non-EU concerning the high standard levels in production; no traceability for non-EU product;</li> <li>• Overexploitation of fisheries resources, climate change, alien species;</li> <li>• Poor valorisation of the local fish product - Lack of territorial recognition of the fish product - Little awareness of the new potential of the fishing market;</li> <li>• Difficulty to manage 800 landing points</li> <li>• Limited fishing areas;</li> <li>• Poor organization of distribution channels, Long supply chain;</li> <li>• Aging of fishermen, too much bureaucracy, poor training of fishermen and producers;</li> <li>• Difficulty to manage a basin with many Countries (3 continents) and their different legislation;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Diversification, marketing, local development plans;</li> <li>• New sustainable approaches, new value chains;</li> <li>• Enlargement of local markets through international outlets;</li> <li>• Information and continuous training actions also aimed at improving skills of professional fishermen;</li> <li>• Conversion and diversification of fisheries operators towards activities to enhance coastal areas of considerable environmental value to be used for recreational purposes;</li> <li>• Increase in the number of visitors interested in ecotourism;</li> <li>• Development of investments in integrated supply chain;</li> <li>• Interconnection with other sectors, Digitalization of procedures, Improve the ICZM</li> <li>• Producer organizations (OP);</li> <li>• Active fishery research;</li> <li>• European funding, certification of the products, integration with other sectors (agriculture, tourism), consumer awareness;</li> <li>• Improvement of facilities on board and on land;</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental pollution, marine litter;</li> <li>• International competition, changes in the global value chains;</li> <li>• Reduction of fishing yields;</li> <li>• Bureaucracy;</li> <li>• Reduction of income from work as a consequence of the increase in operating costs;</li> <li>• Unsustainable catches;</li> <li>• Climate change; invasive alien species; ecosystem impact;</li> <li>• Impact of recreational fishing (on resources);</li> <li>• IUU Fishing;</li> <li>• Damage to the sea bottom;</li> <li>• Decrease in fish consumption;</li> <li>• Competition for space with other uses of the sea;</li> <li>• Competition from non-EU countries;</li> </ul>

### Montenegro

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Suitability of Montenegrin coastal waters for small-scale fisheries;</li> <li>• Long fishing tradition in small-scale fisheries;</li> <li>• Excellent climatic conditions that favour tourist attraction;</li> <li>• High demand for fish during the touristic season;</li> <li>• Presence of associations of SSF enterprises/fishermen;</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Fisheries is not an attractive profession for younger generations;</li> <li>• Old fleet with high operational and maintenance costs;</li> <li>• Low demand for fish outside the main touristic season, limiting the incentives for fishermen to invest in upgrading their equipment and gears;</li> <li>• Very limited fish processing industry;</li> <li>• Low application of available scientific knowledge;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Diversification of activities in relation to fish-tourism, ichthyotourism and environmental protection/education.</li> <li>• Growing consumer demand for fish;</li> <li>• Mature conditions to establish producer organizations and clusters for fishermen;</li> </ul>	<ul style="list-style-type: none"> <li>• Overexploitation from other metier (e.g. trawlers) or recreational fishing;</li> <li>• Pollution stemmed from different anthropogenic activities;</li> <li>• Pollution from ships (mainly cruisers) and inland sources;</li> <li>• Increased competition from the EU markets – lower-priced imports more competitive than domestic products;</li> </ul>

### North Macedonia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• High market demand for certain fish species;</li> <li>• Possibility of improving livelihood of the local inhabitants;</li> <li>• Tourism and recreational fishing;</li> <li>• Fishery Master Plans for every water body in the country;</li> <li>• Well organized recreational and sport fishery association;</li> </ul>	<ul style="list-style-type: none"> <li>• Illegal fishing - poaching;</li> <li>• Commercially orientated, not given well attention to species and spawning grounds protection;</li> <li>• Need of equilibration of bilateral laws and bylaws with neighbouring countries (transboundary lakes) - closing seasons, quotas, minimum length size;</li> <li>• No strict implementation of the Fishery Master Plans;</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Good cooperation of science in the fishery sector;</li> <li>• Fishtourism and recreational fishing;</li> <li>• Strengthening the legislation implementation.</li> </ul>	<ul style="list-style-type: none"> <li>• Biodiversity impact - overfishing of certain species and illegal fishing;</li> <li>• Disturbed - impacted spawning grounds due to human activities.</li> </ul>

## Serbia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Abundant inland water resources: total length of all rivers and streams in Serbia is 65 980 km; There are about 50-60 natural lakes of the total surface of 5 000 ha, and about 150 reservoirs and ponds;</li> <li>Tradition in commercial fishing in large rivers;</li> <li>Popular recreational fishery.</li> </ul>	<ul style="list-style-type: none"> <li>Low consumption of fisheries products;</li> <li>Existing rules for marketing and labelling of fish and fishery products are only partially aligned with EU requirements;</li> <li>Delay to adopt an action plan that will ensure full compliance with the requirements of the EU acquis, in particular regarding organisation of the markets (fish catch certificate issue), data collection and control measures against illegal, unreported and unregulated fishing.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>Improving food safety standards to access export markets;</li> <li>Devising and adopting national plans for fisheries;</li> <li>Diversification of activities in relation to fish-tourism, ichthyotourism and environmental protection/education.</li> <li>The continuous deficit in Serbia's trade in fish and fishery products can close or even reversed.</li> </ul>	<ul style="list-style-type: none"> <li>Competition from other EU and 3<sup>rd</sup> Countries for fisheries products</li> </ul>

## Slovenia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Fresh products of high quality;</li> <li>Short value chain;</li> <li>Long and strong local tradition, and high levels of fishing experience.</li> </ul>	<ul style="list-style-type: none"> <li>No association of fishermen, small scale fishery;</li> <li>High economic risks;</li> <li>Low fish consumption per capita and weak consumer base with loyalty to Slovenian products.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>Good cooperation of science in the fishery sector;</li> <li>Fishtourism and recreational fishing;</li> <li>Integrating fishermen in fisheries organisation.</li> </ul>	<ul style="list-style-type: none"> <li>Aging of fleet and related poor working conditions;</li> <li>Competition from 3<sup>rd</sup> countries and imports of cheap seafood products;</li> <li>No initiatives, no fishermen associations.</li> </ul>

## Aquaculture

The aquaculture SWOT analysis per country is also in agreement with the SWOT analysis of Pillar I “Blue Growth” as presented in the 1<sup>st</sup> Pillar Annual Monitoring Report 2019. There are important differences both between the EU countries as well as between the EU and the non-EU countries and this is further enhanced by the geographic

separation of the 9 countries of the macro-region. The existing gaps between countries with and without access at the sea are apparent and the strategy must include common actions around, technology, marketing, trade and administration in order to promote sustainability, diversification and competitiveness through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits.

Further to the above SWOT analysis, through the survey, individual expert discussions and the focus group discussion, the following SWOT analysis per country has been implemented in an effort to further diagnose the needs and priorities of each country in the Adriatic-Ionian macro-region for the aquaculture sector.

The AIM has the longest coastline in the EU (40%). This ideal geomorphology of the marine areas of the macro-region and the largest number of islands (in Greece and Croatia) constitutes the development of aquaculture activities a rising star of Blue Growth investments. The existence of a framework for the development of aquaculture and plans for marine spatial planning are in place (however still not enacted), whereas there is an excellent know-how in the cultivation of seabream, seabass, mussels and other shellfish as well as abundance of appropriate high quality of sea and inland fresh waters for the successful operation of aquaculture activities. The weaknesses include the low rate of adaptation to institutionalized spatial planning, the fact that the existing areas designated for aquaculture are fully occupied, the conflicts with other uses of the sea and coastal line (e.g. tourism) provide limited spatial possibilities for coastal marine aquaculture development. Despite the progress made in the legislation, there is still a time-consuming and complex licensing system as well as problems of economic nature due to lack of liquidity and low access to credit. The sector is threatened by the fact that there are delays in timely enforcement and implementation of a stable and up-to-date operating framework for the industry, global warming and climate change, and pollution of the environment with organic matter due to the shell secretion causing the formation of a secondary hard layer on the sea bottom under the shellfish plantations. However, aquaculture is here to stay and already more than 50% of the world seafood comes from aquaculture.

The opportunities include the development, restructuring and improvement of the aquaculture sector through the establishment of Allocated Zones for Aquaculture (AZA) in accordance with the EU Maritime Spatial Planning and Sustainable Development Framework for Aquaculture, thus increasing marine knowledge as a first step towards MSP and ICZM at macro-regional level and applying an ecosystem-based approach to maritime governance, synergies and cooperation through the European Aquaculture Technology and Innovation Platform (EATIP) and its mirror platforms and the integrated management of human activities on coastal and maritime areas that could support the elaboration of a large scale contingency plan. The near future should also foresee special measures to reduce litter production from aquaculture activities and enhance recycle/reuse practices and use of new materials and enhance R&D&I platforms that

could gather information on water quality and support the development of measures against pollution (including eutrophication) as well as the development of new molecular biology tools for monitoring and characterisation of the indigenous species that can be produced.

**Aquaculture standards and practices:** In the macro-region there is a significant know-how and high professional competence of the producers (fish and shellfish) in applying modern methods of production and handling of fishery products. This can be further enhanced by further support of organic production and ecological labelling of seafood products, and use of locally produced raw materials (e.g. legumes, oil reach seeds etc), as alternative raw materials for fish feed production substituting fish meal and fish oil. This can be further boosted by aquaculture related R&D&I platforms that could also support the elaboration of a large-scale contingency plan, in case of accidents.

**Seafood products:** The ever-increasing demand for aquaculture products is coupled with the nearby EU demand. Despite the fact that there is an increased competition from non-EU countries in the international competing environment and inadequate information of consumers for safety and hygiene of aquaculture products, the growing demand for consumption of seafood, gives important opportunities in the macro-region to produce more in the assigned AZAs, diversify the industry with new species and offshore technology with the aim of expanding existing demand and penetrating new markets. All these by taking into consideration both marine and freshwater aquaculture opportunities.

**Aquaculture skills:** The vertical integration of marine fish aquaculture production units in the macro-region and the existence of academic and research centres dealing with the aquaculture sector can safeguard the cooperation of aquaculture units with RTD institutions for research and innovation. In addition, there is a continuous need for training in techniques and skills and utilise non-local labour from the new waves of immigration into the aquaculture sector.

From the above SWOT analysis for aquaculture, it is evident that policy choices must support the achievement of the objectives of the Common Fisheries Policy, to foster the implementation of the Union's maritime policy and to strengthen international ocean governance. They should also contribute to food security through competitive and sustainable aquaculture and markets. Aquaculture activities must be environmentally sustainable in the long-term and to be managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies.

It should be possible for the Adriatic-Ionian macro-region to support the promotion and the sustainable development of aquaculture, which includes **both marine and freshwater aquaculture**, for the farming of aquatic animals and plants for the production of food and other raw material.

Policies must also support the marketing of fishery and aquaculture products, in line with the objectives of Regulation (EU) No 1379/2013 of the European Parliament and of the Council ('CMO Regulation'). In particular, support should be available for the creation of producer organisations, the implementation of production and marketing plans, the promotion of new market outlets and the development and dissemination of market intelligence.

**Main results expected for the Aquaculture sector include:**

- ◆ Sustainable and competitive aquaculture and markets. Increase of aquaculture production.
- ◆ Contribution to food security in the Union through competitive and sustainable aquaculture and markets.
- ◆ Improvement of productivity, quality, environmental sustainability and diversification in aquaculture.
- ◆ Introduction of new species of commercial value (diversification of farmed aquatic species), the use of alternative raw materials for feed production, new farming technologies (including offshore aquaculture) that minimize the impact on the surrounding environment, use of advanced processing technologies and innovative actions on traceability of fishery and aquaculture products.
- ◆ Improvement of the image and competitiveness of farmed products.
- ◆ Acquisition and improvement of professional skills.
- ◆ Creation of improved sustainable marine aquaculture systems and implement productive and resilient aquaculture practices that maintain healthy aquatic ecosystems and strengthen capacity for adaptation to climate change.
- ◆ Enhancement of genetic diversity of farmed aquatic species (fish, molluscs and crustaceans).

The following tables present the SWOT analysis at country level.

## Albania

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Abundant water resources in the country, starting from the coast (sea) up to the rivers and lakes (natural &amp; artificial);</li> <li>Good experience gained on marine species cultivation and on carp family species;</li> <li>Good perception from people for aquaculture products;</li> <li>Trout- culture has spread in mountainous areas where cold and oxygen-rich waters are abundant.</li> <li>The adoption of a special law "On Aquaculture" where its pillar is AZA (Allocation Zone for Aquaculture).</li> </ul>	<ul style="list-style-type: none"> <li>No proper policies for well-using the water bodies for aquaculture;</li> <li>The fish food industry is absent;</li> <li>No hatcheries and fish feed factories for marine species under cultivation, resulting to increased cost of production due to the imports from Greece and Italy;</li> <li>No proper staff dedicated aquaculture is governing;</li> <li>Not enough scientific research on aquaculture, lack of reliable data on the aquaculture centres and production.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>Building the proper policies for strengthening the sector and its sustainability;</li> <li>AZA (Allocation Zone for Aqua/re) &amp; marine space planning;</li> <li>Good practices on aquaculture especially on environmental aspects relating aquaculture centres;</li> <li>Albania has abundant water resources; Only few of them is exploited;</li> <li>The domestic market has high demand for aquaculture products, especially during the touristic season.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of vision for sustainable aquaculture by the policymakers and lack of supportive policies;</li> <li>Lack of competitive scientific research and institutions;</li> <li>No spatial planning for AZA to give to this sector the deserved dignity and prosperity;</li> <li>Lack of frequent and serious monitoring of the whole aquaculture sector;</li> <li>Lack of Aquaculture Organizations and/or Associations;</li> <li>No good relationship with environmental bodies and policymakers, etc.</li> </ul>

## Bosnia and Herzegovina

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Know-how and tradition in carp production;</li> <li>Favourable natural conditions and water resources;</li> <li>National market can absorb local production;</li> <li>Local fry and fish feed availability.</li> </ul>	<ul style="list-style-type: none"> <li>Laws are not harmonized, coordinated and supported by implementing guidelines and regulations;</li> <li>Supervision, monitoring and annual statistical evaluation of the sector is missing;</li> <li>Lack of adequate support for aquaculture production.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>Branding a production of endemic species;</li> <li>Generating employment and further income through sport fishing tourism and export of high-quality endemic fish and fish products.</li> </ul>	<ul style="list-style-type: none"> <li>Unlicensed fish farms and fishing organizations;</li> <li>Qualitative and quantitative damages to fish fauna;</li> <li>Dams and hydropower plants;</li> <li>Lack of genetic monitoring of stocks and wild fish fauna.</li> </ul>



**Croatia**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Favourable climatic conditions and clean sea, that is combined as a tourist and gastronomic destination with many years of experience in providing tourist services - therefore numerous opportunities to sell aquaculture products;</li> <li>• Increasing interest in aquaculture development and high-quality products;</li> <li>• High quality of sea cleanliness in the coastal area.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental impact in surrounding areas;</li> <li>• Low consumption of aquaculture products per capita at the national level.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Huge potential for aquaculture growth in the country;</li> <li>• Diversification of production through breeding of new species and development of new products and technologies and connection with processing sector;</li> <li>• Better utilization of EU grants funds;</li> <li>• Increasing sales of aquaculture products due to food awareness;</li> <li>• Breeding new species.</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change and its impact on the marine environment;</li> <li>• Competition from European and international manufacturers with lower production costs;</li> <li>• Complicated legislation;</li> <li>• Pollution from tourism;</li> <li>• Giving up due to insufficient funds.</li> </ul>

**Greece**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Know-how and high professional competence of the producers (fish) in applying modern methods of production and handling of fishery products;</li> <li>• Great potential for expansion due to excellent and clean waters;</li> <li>• Implementation of marine spatial planning;</li> <li>• Increasing demand for aquaculture products</li> <li>• Export oriented (economic - social contribution) as fish farms have succeeded in making their products the second (after olive oil) exportable product;</li> <li>• Excellent human capital, educated people, good cooperation with research, a lot of jobs;</li> <li>• 17.000km of coastline and 3.000 islands including multiple bays with great water quality and climatic conditions that can fully support the aquaculture sector;</li> <li>• Contribution to jobs and income creation in areas with limited alternative employment opportunities in several country's regions;</li> <li>• Easy access to European and foreign markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts with other uses of the sea and coastal line (e.g. tourism) - Limited spatial possibilities for marine aquaculture development in the coastal zone;</li> <li>• Red tape and bureaucracy;</li> <li>• Slow progress of administrative reforms;</li> <li>• High production cost;</li> <li>• Absence of coordinated and effective policy, advertising and promotion of Greek products in foreign markets;</li> <li>• The time-consuming and complex licensing system;</li> <li>• Problems of economic nature due to lack of liquidity and low access to credit.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Synergies and cooperation through the European Aquaculture Technology and Innovation Platform (EATIP) and its mirror platforms, thus building a common integrated platform;</li> <li>• Implementation of a multiannual plan (up to 2030) and set of the relevant priorities into individual thematic actions &amp; indicative implementation mechanisms for doubling prod/on;</li> <li>• Implementation of aquaculture zoning (spatial planning);</li> <li>• Cultivation of new aquaculture species;</li> <li>• Expansion towards offshore conditions;</li> <li>• Enhancement of competitiveness (set up of PO, R&amp;D, raise awareness for aquaculture products);</li> <li>• Improvement of the environmental impact of the sector through artificial reefs under fish farms can trap fish waste while providing food &amp; shelter to species that feed on fish waste;</li> <li>• Utilization of new technology tools to support transition to sustainable aquaculture;</li> <li>• Increase the involvement of country's fish farms in recycling/upcycling schemes for nets etc;</li> <li>• Research in the feed production, development of vaccines and phage therapy.</li> </ul>	<ul style="list-style-type: none"> <li>• Competition from non-EU countries;</li> <li>• Production costs/low market demand;</li> <li>• Diseases;</li> <li>• Marine pollution;</li> <li>• Variability of economic regime;</li> <li>• Unstable administrative/political framework;</li> <li>• Social acceptability;</li> <li>• Climate change;</li> <li>• Marine pollution; Breeding of non-native species; Eutrophicated and polluted waters due to industrial wastewater, fertilizers, pesticides affect product quality;</li> <li>• Escapees.</li> </ul>

## Italy

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Sustained domestic demand for seafood and high quality of national aquaculture products;</li> <li>• Consolidated technologies for different production systems and species;</li> <li>• Availability of high GES marine and transitional areas for aquaculture development;</li> <li>• Good practices promoted by Aquaculture Producer Associations and elevated production standards (Made in Italy);</li> <li>• High research capability and consolidated methodologies for the identifications of marine zone and sites for aquaculture growth (Allocated Zone for Aquaculture, AZA) and environmental monitoring;</li> <li>• Increased involvement of aquaculture sector in tourism and recreational activities;</li> <li>• High standard levels in production, product traceability;</li> <li>• Relative short supply chain;</li> <li>• Experience in field; entrepreneurial availability.</li> </ul>	<ul style="list-style-type: none"> <li>• Governance: lack of enabling policy environment and governance framework; lack of perception on the strategic value of aquaculture (Italy imports over 73% of fish products); lack of a specific legislation for aquaculture governance (to reduce bureaucratic burdens and simplify administrative/authorization procedures);</li> <li>• Environment: Lack of policies to address aquaculture;</li> <li>• Small size of Italian aquaculture companies (&gt;80% are Micro and SMEs), difficulty of access to credit for new investments;</li> <li>• Poor innovation, especially lack of technologies for offshore mariculture and for aquaculture product processing;</li> <li>• Weak market policies, poor ability to adapt to market changes;</li> <li>• Unfair competition with non-EU concerning the high standard levels in production; no</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Knowledge, technologies and suitable sites for low C and low impact aquaculture growth;</li> <li>• Increasing number of Producer's Organization, increasing interest on product information (labelling, provenance, freshness and traceability) to communicate the quality of aquaculture products and to improve Ho Re Ca market;</li> <li>• Good knowledge and IT tools available for benchmarking aquaculture sector using sustainability performance indicators (KPIs) validated by aquaculture sector;</li> <li>• Scientific knowledge and awareness of policy makers to improve environmental sustainability and ecological footprint of aquaculture, contributing to F2F strategy' objectives;</li> <li>• Promotion of conservation aquaculture practices to enhance conservation status of critically endangered species (e.g. sturgeons) at national and local level;</li> <li>• New value chains, environmental sustainability, Bioremediation; exploring new methods for reduction of impact; redesign the supply chain</li> <li>• Organic farming, o Certification processes;</li> <li>• Innovation in species and technology for production.</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change (algal blooms and adverse weather conditions), alien species, ecosystem impact;</li> <li>• Market competition from third Countries;</li> <li>• Environmental pollution;</li> <li>• Hesitations in the consumption of fish from aquaculture;</li> <li>• Bureaucracy.</li> </ul>

## Montenegro

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Experience in marine and freshwater aquaculture;</li> <li>• Good geography, climate and water quality;</li> <li>• Vicinity to the EU markets;</li> <li>• Strong tourist demand for good quality local products.</li> </ul>	<ul style="list-style-type: none"> <li>• Small unit production capacity with high production costs;</li> <li>• Limited opportunity to diversify the market base by targeting export markets;</li> <li>• High interest rate of credits;</li> <li>• No production planning and weak sector organisation;</li> <li>• Limited technical staff and no training or expert assistance to support innovations;</li> <li>• Limited application of HACCP;</li> <li>• Low and inconsistent supply from domestic suppliers;</li> <li>• The high cost of "first-hand" sales;</li> <li>• Limited investment in value-added production;</li> <li>• Competition from other established competitors in other Balkan countries;</li> <li>• Gap between production and demand;</li> <li>• High prices of domestic products;</li> <li>• Limit retail stores and shopping opportunities;</li> <li>• Lack of traceability.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Strong interest in developing the capacity for processing;</li> <li>• Growing domestic demand for fish;</li> <li>• New production systems and species and opportunities for cage culture;</li> <li>• Zoning of the coastal zone allows implementation of long-term strategy for development of mariculture;</li> <li>• EU membership will expand potential markets;</li> <li>• Increasing demand from tourism and the potential to integrate through services;</li> <li>• Further development of the cold and chill chain;</li> <li>• Strengthening of association and producer groups, in order to strengthen market access.</li> </ul>	<ul style="list-style-type: none"> <li>• Small unit production capacity with high production costs;</li> <li>• Limited opportunity to diversify the market base by targeting export markets;</li> <li>• High interest rate of credits;</li> <li>• No production planning and weak sector organisation;</li> <li>• Limited technical staff and no training or expert assistance to support innovations;</li> <li>• Limited application of HACCP;</li> <li>• Low and inconsistent supply from domestic suppliers;</li> <li>• Limited investment in value-added production;</li> <li>• Competition from other established competitors in other Balkan countries;</li> <li>• Gap between production and demand;</li> <li>• High prices of domestic products;</li> <li>• Limit retail stores and shopping opportunities;</li> <li>• Lack of traceability.</li> </ul>

### North Macedonia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Subsidies for aquaculture development;</li> <li>• Relation: science - aquaculture production;</li> <li>• Good cooperation between aquaculture entities in the country.</li> </ul>	<ul style="list-style-type: none"> <li>• Unpredictable market demand for the product;</li> <li>• Lack of quality control;</li> <li>• No exports.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Improvement of livelihood.</li> <li>• Development of the sector.</li> <li>• Possible future exports.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental impact due to poor implementation of the environmentally friendly legislation;</li> <li>• Dispersal of non-native species in certain water bodies;</li> <li>• Introduction of fish diseases and fish parasites.</li> </ul>

### Serbia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Know-how and tradition in carp production;</li> <li>• Favourable natural conditions and water resources;</li> <li>• National market can absorb local production;</li> <li>• Local fry and fish feed availability.</li> </ul>	<ul style="list-style-type: none"> <li>• Low consumption of fisheries products;</li> <li>• Long breeding period;</li> <li>• Neglected fish farms;</li> <li>• Low profitability;</li> <li>• Lack of investments to build infrastructure.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Quality products can be exported to EU countries;</li> <li>• Increase production;</li> <li>• Possibility to produce organic products;</li> <li>• Diversify species production;</li> </ul>	<ul style="list-style-type: none"> <li>• Import of cheap fish from 3<sup>rd</sup> countries;</li> <li>• Diseases;</li> <li>• Small consumption of fish in Serbia.</li> </ul>

### Slovenia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Short supply chain;</li> <li>• High quality products;</li> <li>• Recognition of the importance of mariculture as increasingly important for the competent</li> </ul>	<ul style="list-style-type: none"> <li>• Small producers, shortage of available resources;</li> <li>• Very limited coastal zone.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Improve local seafood supply;</li> <li>• Marketing to promote local products;</li> <li>• Increase production and environmentally-friendly production by implementing measures for innovation, investments in increased production, developing new forms of income and added value, improved management of aquaculture installations and human capital,</li> <li>• Transition to eco-management, promoting animal health and welfare, management of aquaculture stock, and the development and implementation of local development strategies.</li> </ul>	<ul style="list-style-type: none"> <li>• Harmful events in the sea;</li> <li>• Competition for coastal space with sectors such as offshore energy production, port development, fishing, shipping and coastal tourism;</li> <li>• Competition from seafood products imported from the EU and third countries.</li> </ul>

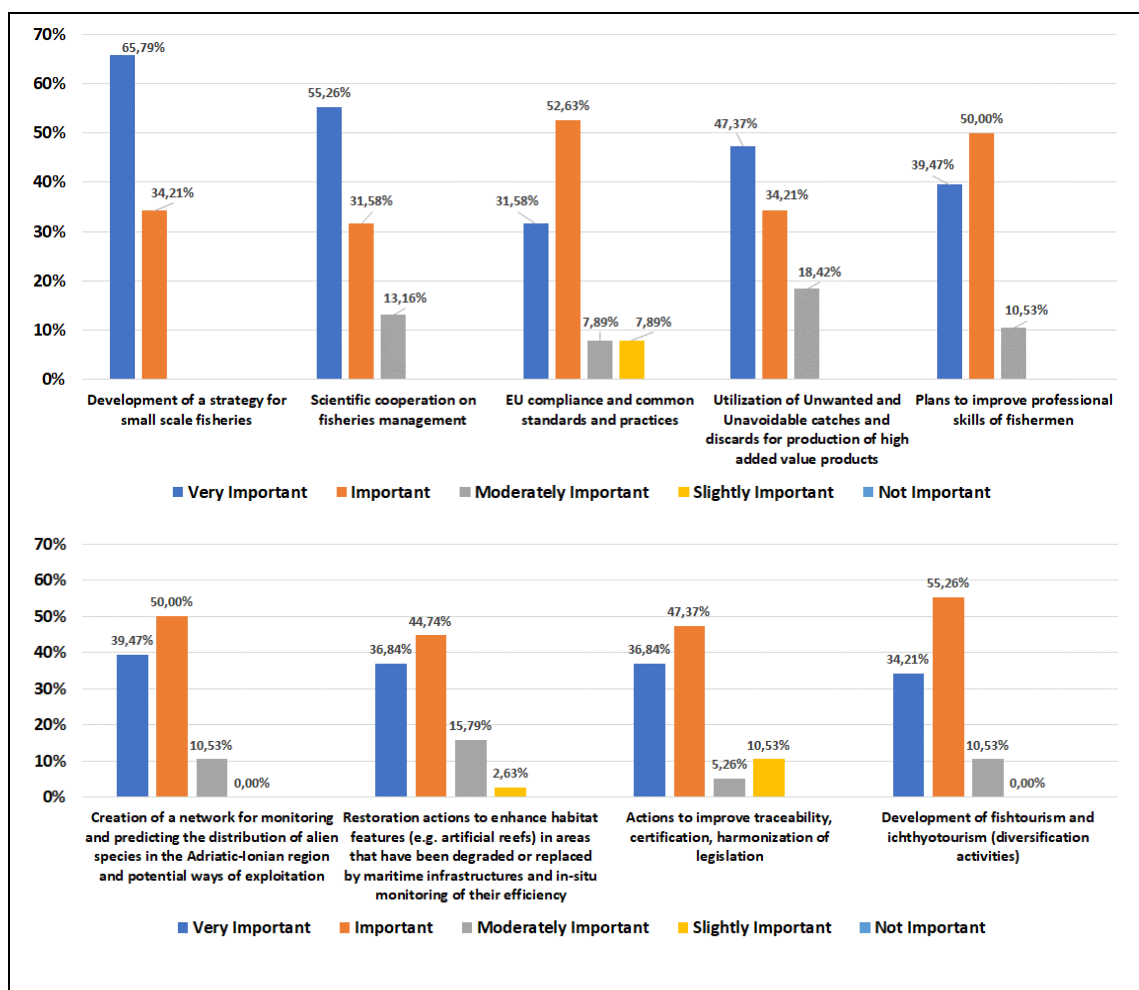
### 4.3.3. Proposed project areas by the stakeholders in the Fisheries and Aquaculture sector for the programming period 2021-2027

#### Fisheries

The following figure ranks the Proposed Project Areas in the fisheries sector, based on the responses to the on-line survey and in terms of what is considered as very important. None of the proposed areas is considered as not important.

The development of a strategy for small scale fisheries is considered as very important and important by 100% of the replies. Actions to improve traceability, certification, harmonization of legislation are considered as very important and important by 89.47% of the replies, together with the plans to improve professional skills of fishermen. Development of fishtourism and ichthyotourism (diversification activities) is considered as very important and important by 76.32% of the replies.

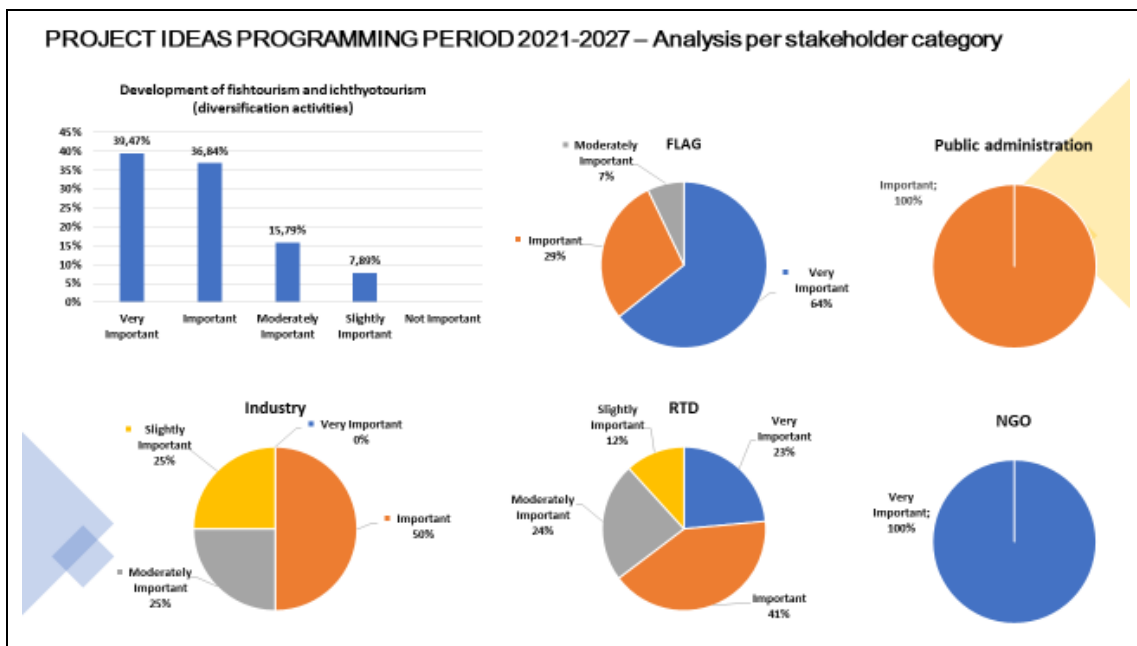
Figure 15. Proposed Project Areas by the stakeholders in the Fisheries sector for the programming period 2021-2027



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 38 responses)

The fragmentation among stakeholders for the various project ideas is depicted in the following Figure. Diversification activities are considered as very important by the NGOs (100%), FLAGs (64%) and RTDs (23%) but not from the fishermen themselves. Fishermen consider diversification activities towards fishtourism and ichthyotourism important (50%), moderately important (25%) and slightly important 25%. None of them considers it very important.

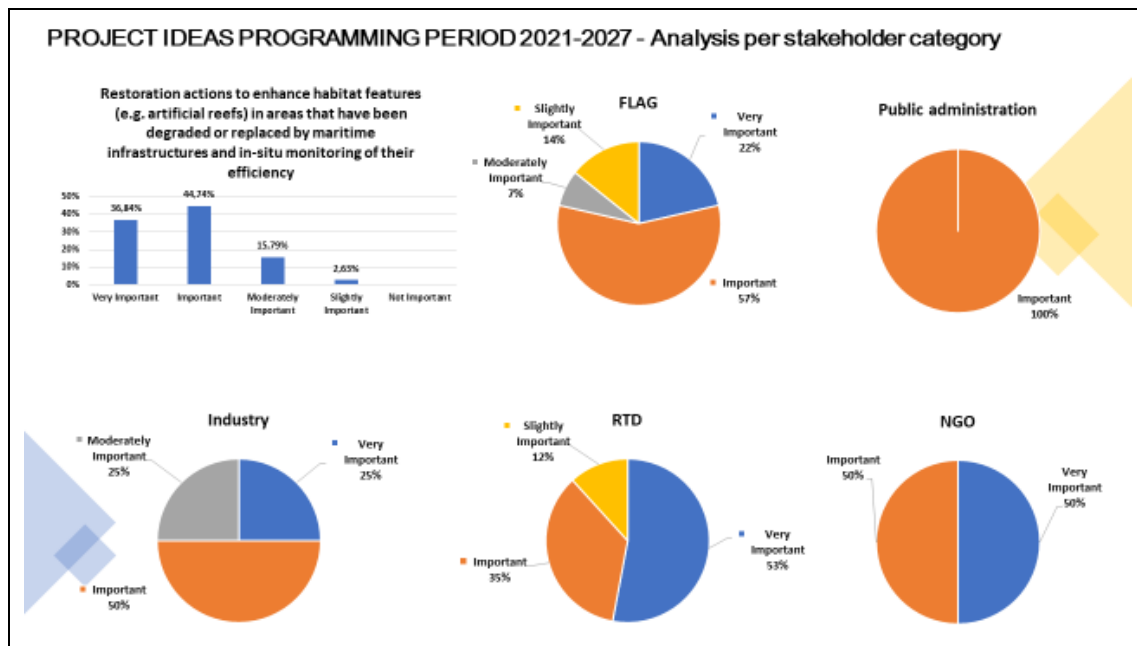
Figure 16. Analysis per stakeholder of the importance of diversification activities (fishtourism and ichthyotourism)



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 38 responses)

The following Figure depicts the analysis per stakeholder of the importance of restoration actions to enhance habitat features. This is considered as very important by reasearch and technological development stakeholders (53%), by NGOs (50%), by the fishermen (25%) and by FLAGs (22%).

Figure 17. Analysis per stakeholder of the importance of restoration actions to enhance habitat features



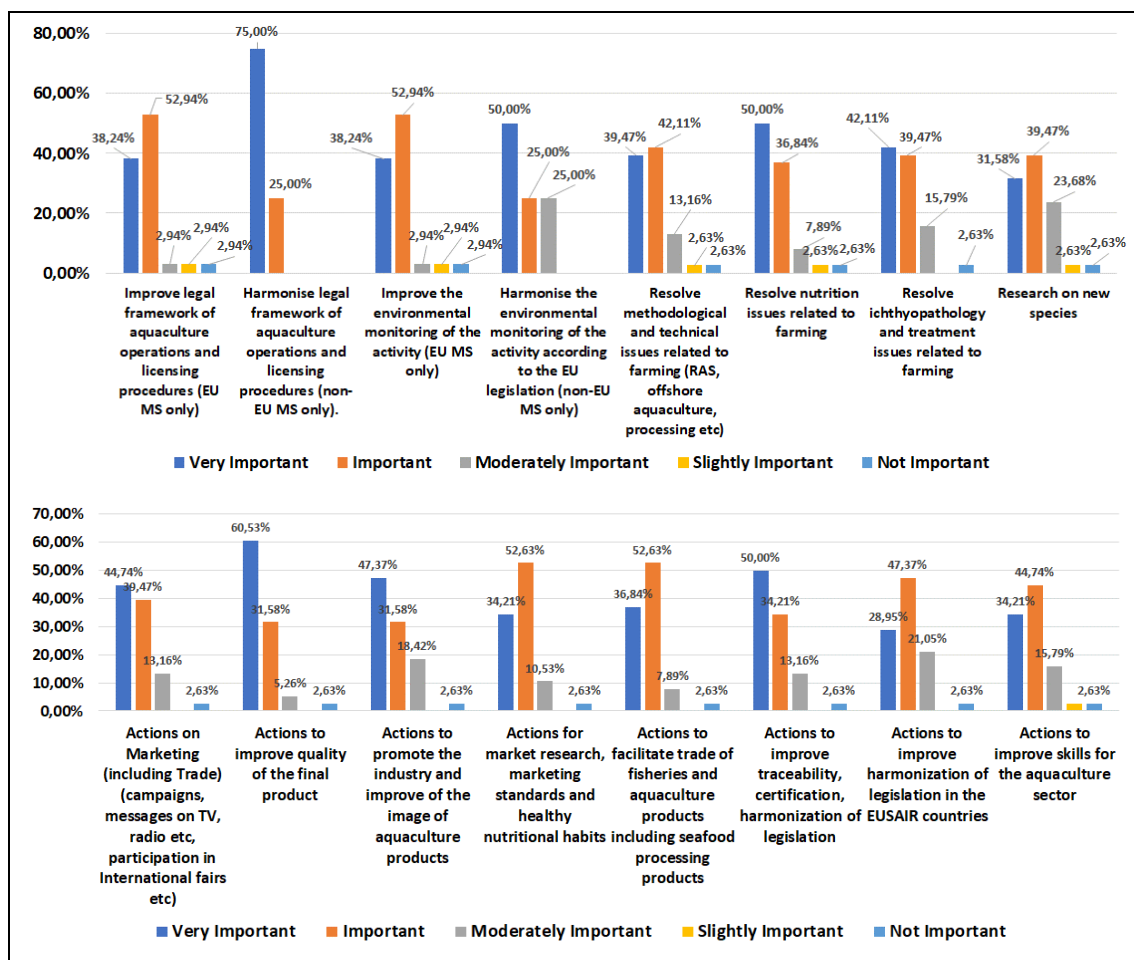
Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 38 responses)

## Aquaculture

The following figure presents the ranking of the very important project areas with actions to improve quality of the final product and actions to improve traceability, certification, harmonization of legislation to be considered as very important by 60,53% and 50,00% of the respondents respectively. Actions to improve quality of the final product are considered as very important and important by the 92.11% of the replies. Actions to promote the industry and improve of the image of aquaculture products together with actions to improve skills for the aquaculture sector are considered as very important and important by the 78.95% of the replies.



Figure 18. Proposed Project Areas in the Aquaculture sector and their importance



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 38 responses)

#### 4.4. MARITIME AND MARINE GOVERNANCE AND SERVICES

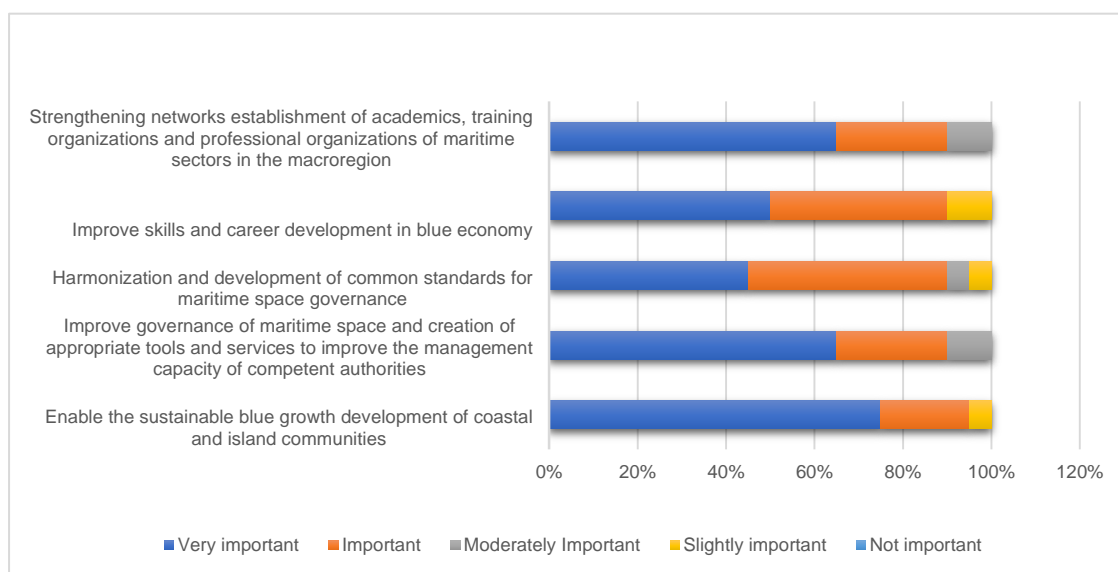
##### 4.4.1. Proposed priorities by the stakeholders in the Maritime and Marine Governance and Services sector for the programming period 2021-2027

The survey revealed that priorities for Topic 3 - Maritime and Marine Governance and Services for the new programming period should focus on:

- Enabling the sustainable Blue Growth development of coastal and island communities (75% VI, 20% I, 5% SI);
- Improving governance of maritime space and creation of appropriate tools and services to improve the management capacity of competent authorities (65% VI, 25% I, 10% MI);

- Strengthening networks establishment of academics, training organisations and professional organisations of maritime sectors in macro-regional level (65% VI, 25% I, 10% MI);
- Improve skills and career development in the Blue Economy (50% VI, 40% I, 10% SI);
- Harmonization and development of common standards for maritime space governance (45% VI, 45% I, 5%MI, 5% SI).

Figure 19. Proposed priorities by the stakeholders in the Maritime and Marine Governance and Services sector in the programming period 2021-2027



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 20 responses)

Among the five stated priorities the enabling of sustainable development both in coastal and island regions was the area that concentrated the highest percentage of very important evaluations, while the harmonization and development of common standards was the area receiving the smaller percentage of very important assessments (45%).

#### 4.4.2. SWOT Analysis

During the focus group on Maritime and Marine Governance and Services the participants verified and further enriched the strengths and weaknesses of the EUSAIR region related to the Maritime and Marine Governance topic, identified through the desk research conducted by the Pillar 1 M&E Consultant and presented in detail in the Pillar 1 Annual Monitoring report 2019 (deliverable D.3 of the contract).

In respect to the strengths of the macro-region the participants confirmed the significant contribution of Blue Economy sectors to the development and wealth of the EUSAIR area, stressing the scientific competencies, the human capital and the existence of

research activities as positive forces. In the same context, the respondents, apart from the strong maritime tradition of the region, further highlighted the rich maritime heritage as a factor directly connected to the social wellbeing of local communities and at the same time as the source for the design and production of new services and products. All participants noticed the quality of marine environment and further the good state of natural capital which is considered a precondition for the further development of Marine Economic Activities, while emphasized the trend towards fostering sustainable practices and services, a fact that contributed to the maintainability of environmental state.

In respect to the weaknesses, the participants focused on the high pressures exerted to regional environments, due to the diaspora of anthropogenic activities taking place, a condition that leads to the overexploitation of the sea marine resources and at the same time increases pollution levels, urging for interventions.

In terms of legislation, the participants assessed the existing framework as ineffective, while they noted the administrative fragmentation, the delays in planning and implementation as well as the low public engagement. It was further commented that there is a “lack of understanding” among the different countries, a fact often mentioned to leading to different approaches and implementation levels especially for the non-EU countries.

As far as governance is concerned, it was noted that the absence of expertise at central and regional levels leads to the design of conflicting strategies and finally ineffective decision-making. What has not been mentioned in previous SWOT analyses for the areas and was particularly highlighted by the focus group participants is the “problematic information flow among stakeholders”. Participants characterized the relations among the range of stakeholders as “low quality of communication”, while the results of scientific projects produced are not communicated and disseminated to the wider public, indicating the need for simplifying the results and make “science for public”.

Finally, the lack of dedicated funding for the areas was perceived as a significant hindering parameter for the implementation of the Strategy.

In respect to the opportunities at EUSAIR level it was stressed that the upgrade of infrastructures and the harmonization of legislation are two favouring conditions. Alike, the acceleration of digitalization and the research on digital applications contribute to the better monitoring of EUSAIR environmental state and, as such, the availability of more precise data can lead to better decision-making. In addition, the development of ecosystem services such as tourism, fisheries and aquaculture can become the core of sustainable development.

In respect to the human capital it was stated that the effective management of coastal and insular areas will lead to “brain gain” and reverse the trend observed during the period of financial recession, when well-educated personnel left their countries due to the unemployment barrier. The conservation of marine biological diversity and the creation of

synergies among the EUSAIR countries focusing on creative and cultural industries are two thematic areas that can generate opportunities and alternative business models.

Furthermore, it was suggested that the Blue Growth Pillar could be perceived as a horizontal framework employing the role of coordinator among the four Pillars of the Strategy, while the European Green Deal can be used as the context that set new conditions and challenges for the production and mobility. Finally, the new programming period 2021-2027 was assessed as an opportunity for the area.

In terms of threats two group factors were identified. The first one concerns exogenous factors and events such as the economic crisis generated due to the COVID-19 pandemic. It is noted that the wider area has not totally recovered from the economic crisis of 2010. Furthermore, the area is open to the high competition of non-EUSAIR countries. Finally, an endogenous threat is the problematic implementation of the projects and more precisely there are gaps in implementation and miscoordination of projects, implying the existence of similar projects running in parallel. This leads to inefficient use of financial sources and the replication of research.

The following Tables present the SWOT Analysis of the third topic of EUSAIR Pillar 1 at country level. The Ideal EUSAIR study findings verify the SWOT analysis of Pillar 1, as carried out through desk research by the Pillar 1 Monitoring and Evaluation Consultant and presented in the Pillar 1 Annual Monitoring Report 2019.

### Croatia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Existing bilateral delimitation agreements with neighbouring countries</li> <li>• National legislation determining protection zones</li> <li>• Development of Natura 2000 Network</li> <li>• Maritime planning part of the integrated spatial plans</li> <li>• Adaptation of national regime to EU Directives</li> <li>• National body competent for spatial planning &amp; regional authorities</li> <li>• Existence of regional spatial plans</li> <li>• Implementation of various EU projects relevant to MSP</li> <li>• Transboundary collaboration</li> <li>• Extensive experience in traditional maritime sectors (e.g. shipping, shipbuilding, offshore industry)</li> </ul>	<ul style="list-style-type: none"> <li>• No systematic planning</li> <li>• Lack of expertise on MSP</li> <li>• Limited institutional capacity</li> <li>• Fragmented governance</li> <li>• No management of N2Ksites</li> <li>• Insufficient specialized human resources</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Capacity building opportunities through EU projects</li> <li>• NGOs capacity to support MS planning</li> </ul>	<ul style="list-style-type: none"> <li>• Unsustainable development (e.g. tourism)</li> <li>• Sectoralism</li> </ul>

**Greece**

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<ul style="list-style-type: none"> <li>• Delimitation of EEZ with neighboring countries</li> <li>• Plans for AZ for aquaculture, marine protected areas and Natura areas</li> <li>• Strong know-how on maritime issues</li> <li>• Participation to international initiatives</li> <li>• Innovation &amp; research activities by universities and research institutions</li> <li>• Leading role in shipping sector &amp; extensive experience in traditional maritime sectors (e.g. shipbuilding, fisheries &amp; aquaculture)</li> </ul>	<ul style="list-style-type: none"> <li>• No legally binding MSP in national level</li> <li>• MS planning covers specific sectors (aquaculture, tourism, industry)</li> <li>• No regional MSP authorities</li> <li>• Lack of strategy and an integrated vision</li> <li>• Not enough training in the sector of Blue technologies &amp; absence of critical mass</li> <li>• Low general public engagement</li> <li>• Lack of comprehensive consultation mechanism in local and national level</li> <li>• Lack of data for marine and maritime planning</li> <li>• Conflict of interest among stakeholders blocks efforts for marine zoning</li> </ul>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>• Adoption of good practices, enhancing the science-policy interface</li> <li>• Regeneration of insular communities</li> <li>• Favorable investment scene for blue growth sector</li> <li>• Renewable energy development and decarbonation of islands</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change that magnifies environmental challenges &amp; marine pollution</li> <li>• Geopolitical issues</li> <li>• Illegal immigration</li> <li>• Health crisis limited investment resources</li> </ul>

## Italy

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Application of pilot projects</li> <li>• Competences and experience</li> <li>• State organization and political commitment</li> <li>• Involvement of regions to the planning process</li> <li>• Presence of relevant maritime cluster and participation of medium-large companies</li> <li>• Well advanced traditional sectors, such as shipbuilding &amp; repairs, and offshore industry</li> </ul>	<ul style="list-style-type: none"> <li>• No legally binding MSP in national level</li> <li>• Lack of clear long-term vision and strategy</li> <li>• Administrative fragmentation (ministries, central, regional authorities)</li> <li>• Delays in MSP processes</li> <li>• Slow procedures for EIA</li> <li>• Bureaucracy</li> <li>• No regional MSP available</li> <li>• Stakeholders not actively participation in MSP processes</li> <li>• Limited investment in research and innovation</li> <li>• Small number of large companies' involvement</li> <li>• Insufficient specialized human resources</li> <li>• No participation of young people</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Better organization between Port authorities and inland connections</li> <li>• New programming period</li> <li>• Emergence of technologies (digitalization, biotechnology sector)</li> <li>• Green Deal</li> <li>• Existence of initiatives such as Blue Growth, UNESCO MSP ect</li> <li>• New economic activities</li> </ul>	<ul style="list-style-type: none"> <li>• Slowness in authorization of initiatives</li> <li>• Depletion of natural resources</li> <li>• High competition due to the growth of maritime activities</li> <li>• Economic instability due to COVID-19</li> <li>• Competition from other countries outside EU</li> </ul>

## Slovenia

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Participation to cross-border MSP projects</li> <li>• Good environmental state</li> <li>• Professional competences</li> <li>• Implementation of sustainable practices and initiatives</li> <li>• Establishment of protected areas</li> <li>• Experienced and skilled workforce (e.g. fishing)</li> </ul>	<ul style="list-style-type: none"> <li>• No official MSP in national level</li> <li>• No formal regional MSP authorities</li> <li>• Insufficient specialized skills in innovative fields (e.g. blue technologies)</li> <li>• Planning jurisdiction between local and national authorities</li> <li>• Spatial constrains vs multiple marine activities</li> <li>• Limited spatial possibilities for the development of new activities</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Programming period</li> <li>• Maritime economic activities growth potentials (e.g. tourism, transport, fish consumption etc)</li> <li>• Upgraded infrastructures (e.g. port)</li> </ul>	<ul style="list-style-type: none"> <li>• Increased maritime traffic</li> <li>• Climate change affects particular marine species</li> <li>• Environmental pressures due to anthropogenic activities (e.g. ballast threats, unregulated growth of tourism activity etc.)</li> </ul>

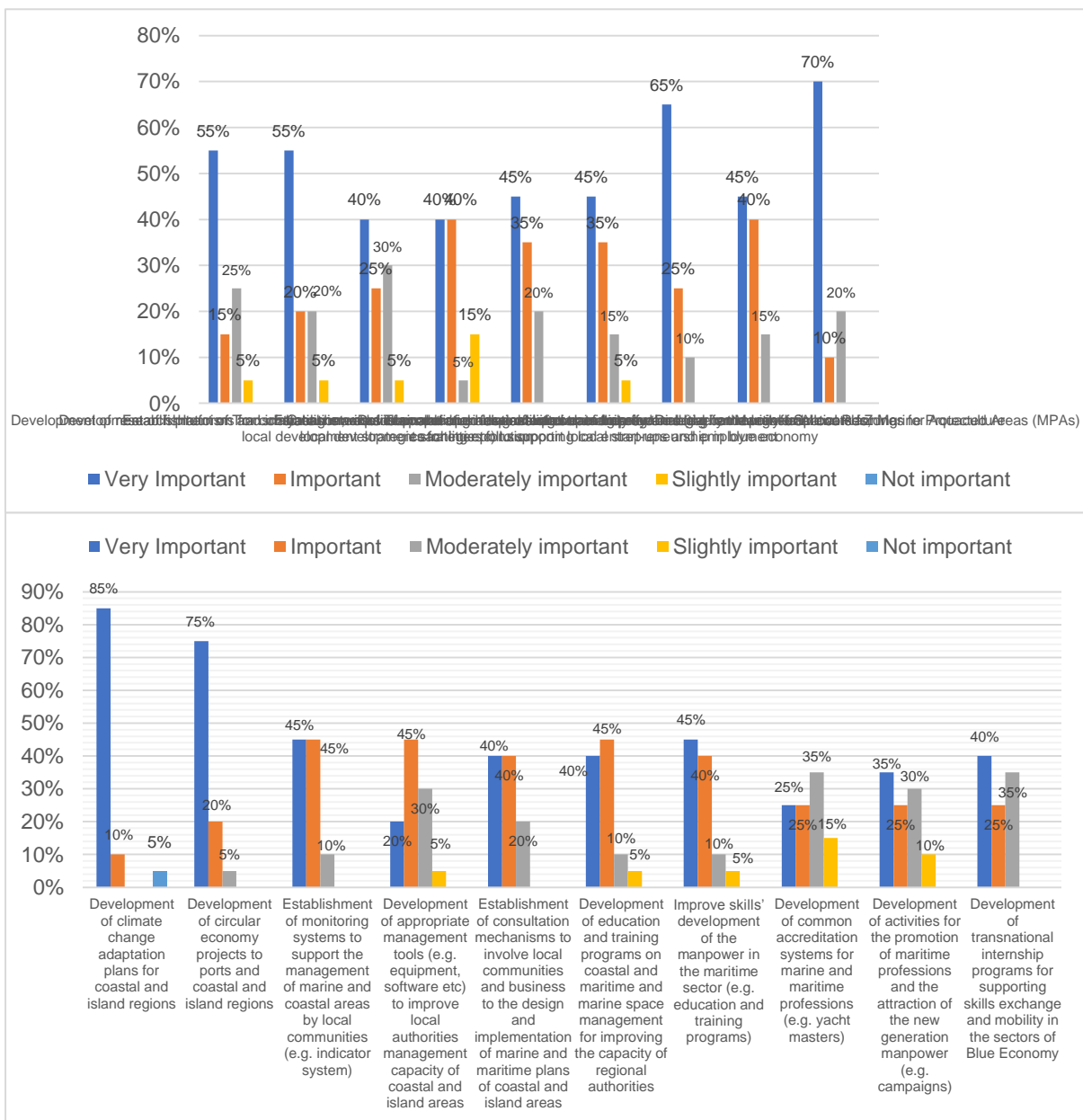
## Non-EU countries

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Developed sectors (maritime transport, fishing, tourism) and reforms supporting the development of maritime economic activities</li> <li>• Participation to EU program, through which MSP and ICZ pilot cases have been developed</li> <li>• Transnational cooperation support transfer of knowledge and expertise in the planning process</li> <li>• Skilled manpower</li> </ul>	<ul style="list-style-type: none"> <li>• Centralized systems</li> <li>• Delays in the enforcement of relevant regulations and standards</li> <li>• Non-systematic planning and poor management mechanism</li> <li>• Bureaucracy</li> <li>• Lack of MSP expertise</li> <li>• Lack of national knowledge &amp; expertise in innovative fields (e.g. blue technologies)</li> <li>• Lack of public awareness</li> <li>• Poor infrastructures</li> <li>• Limited funding for research and innovation in supporting the advancing of sector's sustainability</li> <li>• Certain countries are landlocked or with very limited sea space; limited interest in the field</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Programming period</li> <li>• Investment opportunities for improving infrastructures for sea transport and environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>• Unsustainable development due to unmonitored use of natural resources and coasts</li> <li>• Poor regulatory frameworks undermine growth potentials</li> </ul>

#### 4.4.3. Proposed project areas by the stakeholders in the Maritime and Marine Governance and Services sector for the programming period 2021-2027

The following Figure illustrates the responses of the stakeholders regarding the project areas that should be prioritized in the programming period 2021-2027.

Figure 20. Proposed Project Areas by the stakeholders in the Maritime and Marine Governance and Services sector for the programming period 2021-2027



Source: EUSAIR Pillar I M&E Consultant's survey 2020 (based on 20 responses)



Based on the participants' «very important» responses the top five project areas are:

- The development of climate change adaptation plans for coastal and island regions (85% VI);
- Development of circular economy projects to ports and coastal and island regions (75% VI);
- Improve and clarify the legal framework for Marine Protected Areas (MPAs) (70%);
- Implementation of the new Directive on Maritime Spatial Planning (65% VI);
- Establishment of monitoring systems to support the management of marine and coastal areas by local communities (e.g. indicator system).

During the focus group the participants highlighted the quality of the natural capital of EUSAIR area and its significance for the development of the broad spectrum of maritime economic activities and thus their evaluations portray the special interest in the protection of natural resources by prioritizing the need for projects that focus on the climate change mitigation and the need of the regions to adapt to the new climate conditions, since shifting of environmental state may affect and consequently alter the economic base of the area. In accordance is their assessment in respect to circular economy projects supporting climate change adaptation focus.

The priority areas (2, 3 & 6) have a more legislative focus concerning the implementation of the Directive on Maritime Spatial Planning and the improvement of the framework for Marine Protected Areas. The high rating of these two areas confirms the broader perception that although the institutional framework exists, there are different levels of interpretation and implementation that requires a uniform way - for all MS- in order to achieve an integrated approach. It therefore seems necessary to focus on the establishment of monitoring systems (priority area 5) which will support governing bodies at regional level while involving local communities for example through crowdsourcing or citizens' science techniques. Through the design and implementation of such tools and techniques it would be possible local communities to be educated and furthermore to obtain "ownership" on the implementation of policies and strategies. As stated by participants the design of MSP should depict the spatial interactions of the different activities and take into consideration impact assessments based on optimal data, nevertheless knowledge gaps generate significant barriers towards proceeding with efficient planning proposals.

Fish tourism and ichtyotourism was ranked seventh in the priorities' hierarchy, considered as a source of sustainable entrepreneurship. This high evaluation could be expected given the fact that the wider area has long tradition in the fishing activity while at the same time it is a sector heavily regulated and thus there is need in the existing framework to re-invent their activities towards more sustainable or alternative uses of vessels and or techniques.

The next cluster of priority areas focuses on building capacity for local authorities, the establishment of consultation mechanisms to facilitate the involvement of communities to the process of design policies, the enhancement of local entrepreneurship and the development of educational and training programmes for cultivating the necessary skills for the next generation of manpower. In bottom, five priority areas were proposals related to the establishment of cooperative schemes with transnational dimension relevant to litter pollution and the legal framework for deep-sea resources exploitation and management. While the development of activities to attract qualified personnel to the maritime profession, the development of management tools available to the local authorities and the generation of common accreditation systems were the bottom three priority areas.

## **5. KEY POLICY RECOMMENDATIONS AND PILLAR 1 PROPOSED PROJECT IDEAS FOR THE PROGRAMMING PERIOD 2021-2027**

The key policy recommendations and the project ideas presented in this chapter take into consideration the wider EUSAIR implementation framework in the programming period 2021-2027, as defined by the wider European Blue Growth Strategy trends, the approval of the new Regulations of the European Structural and Investment Funds and the definitions of the EUSAIR priorities regarding Pillar 1 “Blue Growth”. The presentation of project ideas follows a brief illustration of those developments.

### **5.1. THE EUROPEAN BLUE GROWTH STRATEGY**

The Blue Economy is encompassing all economic activities relating to oceans and seas. From a wider perspective it includes all those activities that are marine-based or marine-related.

The Blue Economy is embedded in the overall EU economy and is therefore highly influenced by the economic cycle. The EU-28 GDP was estimated at €15 900 billion in 2018 (€13 500 without the UK) and employment at 224 million people (194 million people without the UK). The contribution of the Blue Economy established sectors to the EU-28 economy in 2018 was 1.5% in terms of GVA and 2.2% in terms of employment. The relative size of the EU Blue Economy in terms of GVA with respect to the overall economy has remained stable at around 1.5% since 2012, while it has increased in terms of employment from 1.8 % in 2015 to more than 2.2 % in 2018. Although data for the EU Blue Economy established sectors are only available until 2018, given the relative stability in their share over the total economy, its size is expected to continue to expand at similar rates in 2019<sup>21</sup>.

The Blue Growth strategy, adopted by the Commission in 2012, is the current long-term policy framework for stimulating economic activities relating to oceans and seas. Seas and oceans are drivers for the European economy and have great potential for innovation and growth.

The EU's Integrated Maritime Policy (IMP), set up in 2007, is a framework to cover the entire maritime economy and to develop coordinated, coherent and transparent decision-making in relation to all policies affecting the oceans, seas, islands, coastal and outermost regions and maritime sectors. Within this wider scope, in 2012 the Commission launched its Blue Growth strategy, which forms the current framework for stimulating growth in the Blue Economy. It was followed by an additional communication

---

<sup>21</sup> European Commission, The Blue Economy Report 2020.

in 2014 and a working document in 2017<sup>22</sup>. The strategy highlights the fact that the Blue Economy needs to be sustainable and respect potential environmental concerns given the fragile nature of the marine environment. The strategy consists of three components<sup>23</sup>:

- 1. Develop sectors that have a high potential for sustainable jobs and growth, such as:**
  - a. Aquaculture, b. Coastal Tourism, c. Marine Biotechnology, d. Ocean Energy, e. Seabed Mining
- 2. Essential components to provide knowledge, legal certainty and security in the Blue Economy**
  - a. Marine Knowledge to improve access to information about the sea;
  - b. Maritime Spatial Planning to ensure an efficient and sustainable management of activities at sea;
  - c. Integrated Maritime Surveillance to give authorities a better picture of what is happening at sea.
- 3. Sea basin strategies to ensure tailor-made measures and to foster cooperation between countries**
  - a. Adriatic and Ionian Seas, b. Arctic Ocean, c. Atlantic Ocean, d. Baltic Sea, e. Black Sea, f. Mediterranean Sea, g. North Sea.

To stimulate growth in the various sectors, the strategy lists certain 'key enablers' such as maritime spatial planning, data collection, research and innovation, maritime surveillance, and efforts to improve skills. The collection and integration of marine data is of particular importance for developing sustainable growth and new innovative services. Furthermore, maritime spatial planning (MSP), already envisaged in the EU's integrated maritime policy, is aimed at managing EU waters more coherently and at avoiding conflicts between sectors. Following the MSP Directive, Member States have to develop plans by March 2021 the latest. In the context of cross-border cooperation, MSP has the ambition to become region-specific rather than country-specific, given the transnational approach included in the MSP Directive. Developing a common vision for each sea basin will be the key to a sustainable Blue Economy. In the EU, such visions are being developed through the sea basin strategies.

The marine strategy framework directive, on the other hand, is the environmental pillar of the EU's maritime policy, aimed at protecting the resources upon which economic and social activities depend by achieving good environmental status of EU's marine waters, so far with only limited progress. A network of marine protected areas, a globally recognised conservation tool, offers socio-economic benefits as well, with the EU reaching the internationally agreed target.

---

<sup>22</sup> COMMISSION STAFF WORKING DOCUMENT, Report on the Blue Growth Strategy, Towards more sustainable growth and jobs in the blue economy, Brussels, 31.3.2017 SWD(2017) 128 final.

<sup>23</sup> European Commission, Maritime Affairs, [https://ec.europa.eu/maritimeaffairs/policy/blue\\_growth\\_en](https://ec.europa.eu/maritimeaffairs/policy/blue_growth_en)

In addition, regional and local partnerships are encouraged, both between Member States (e.g. around certain sea basins) but also through regional cooperation with non-EU countries and partnerships between public authorities, research institutes and economic players. In addition to policy actions, EU funding supports the development of the Blue Economy through various programmes.

The 2014-2020 EU research programme (Horizon 2020) changed the way that marine and maritime research was done. Compared to previous EU research programmes, more effort has been devoted to creating opportunities for previously separate strands of marine and maritime research to work together, for shifting research from the laboratory to the marketplace and for teaming up with non-EU countries sharing a common sea-basin.

Investment in the maritime economy has been provided by EU structural funds, in particular the European Regional Development Fund (ERDF) and the European Maritime and Fisheries Fund (EMFF). The latter provided funds managed by the Commission for maritime policy projects (so-called direct management). Those funds were targeted specifically at maritime priorities and needs and have played a considerable and decisive role in piloting the Blue Growth strategy. The European Regional Development Fund also offers many openings for investment in the Blue Economy through its support to innovation, small businesses and reduction of greenhouse gas emissions.

The sea-basin strategies (in the Atlantic Ocean, the Baltic and the Adriatic and Ionian Seas) and other regional initiatives (for instance in the Mediterranean, the Black and North Seas) have been bottom-up vehicles to trigger regional cooperation and to direct funding from the EU funds (mainly the ERDF) towards the Blue Economy. Results have been achieved but they have been uneven. Funding issues still remain.

There is global growing recognition that investments in Blue Growth should incorporate sustainability elements. As a way to further implement, promote and achieve the UN Sustainable Development Goal 14 'to conserve and sustainably use the oceans, seas and marine resources', the European Commission, the World Wildlife Fund, the World Resources Institute, and the European Investment Bank developed a set of voluntary Sustainable Blue Economy Finance Principles, which have been endorsed by a number of other international finance investors and initiatives, including UNEP's Principles for Sustainable Insurance Initiative (PSI). It is expected that the dimension of Blue Growth will be further integrated into the European policies of the programming period 2021-2027, as a result of a series of processes taking place in the development context of the Member States and the corresponding processes at institutional level. The readiness of the Member States and their regions to take responsibility and be involved in these processes of cooperation will be decisive.

## **Key challenges and opportunities for the Blue Economy sectors**

The Union for the Mediterranean (UfM) has recently published a strategic document on the perspectives of the Blue Economy in the Mediterranean region<sup>24</sup>. In particular the trends for specific Blue economy sectors are as follows:

### **Marine Renewable Energy**

It is considered a fast-growing blue sector, with considerable potential in terms of technological development and employment opportunities.

Marine renewables are given a prominent role within the European Green Deal and the COVID-19 recovery package. A total estimated 70 GW of offshore wind energy production is to be located in Southern European waters by 2040.

Marine renewable energy could help to reduce annual greenhouse gas emissions by 10% so that the global temperature does not exceed the critical threshold of 1.5°C in 2050.

Floating offshore wind technology is considered the most suitable for the Mediterranean Sea given that it can be deployed in deeper waters. This technology allows for exploitation of offshore areas.

### **Marine Research and Innovation**

As a cross-cutting theme Research & Innovation (R&I) is an essential backbone driving the sustainable Blue Economy in the Mediterranean.

Research and innovation investments at all levels are needed to address key challenges of the region, provide tailor-made solutions for society at large and create new and sustainable business opportunities in the Blue Economy.

To be fully effective and impactful, R&I activities should reflect on the specific needs and opportunities for the region. There is a need to prioritize education, vocational training and scientific capacity including technology transfer to anticipate transformative technological trends and promote just transitions. It is also of importance working closely with the private sector to promote innovation and identify and address skills gaps.

The BLUEMED Initiative outlines a set of key challenges, knowledge gaps and enabling activities, as well as measures for capacity creation and skills' enhancement. An Implementation Plan has been drafted in June 2020, resulting from the priorities provided

---

<sup>24</sup> Union for the Mediterranean (UfM), Towards a Sustainable Blue Economy in the Mediterranean region, 2021 Edition

by each Mediterranean country. This addresses a number of structural challenges for a sustainable Blue economy across the sea basin.

### **Maritime Transport and Ports**

The sector is an essential element of the economy and job creation across the Mediterranean, but is also exposed to market fluctuation and international crisis; this makes it a relatively volatile source of growth and jobs in a world increasingly exposed to shocks.

Greening maritime transport is one of the great challenges for the region; this concerns greenhouse gas emissions, air and water pollution, accidents and marine spills, noise, and impacts on biodiversity.

Opportunities have been identified for green shipping and alternative fuels, digitalisation and automation, sustainability of the value chain, and innovative technologies and solutions. Opportunities for the sector are offered by the EU Green Deal and the EU Sustainable Smart Mobility Strategy.

### **Fisheries and Aquaculture**

Although still a relevant economic sector for Mediterranean countries, the fisheries sector is facing an important and growing seafood supply deficit, something fueled by increasingly stringent regional commitments. As part of their national strategies for Blue Economy, several Mediterranean countries have already defined national strategies or action plans to develop marine aquaculture.

Offshore aquaculture production offers promising developments, despite the challenges of disease, local environmental impacts as well as limits to supply growth faced by conventional coastal producers.

The sector is expected to continue developing and diversifying as demand for fish products for human consumption increases and wild stocks continue to decline. By 2025, it is projected that aquaculture will supply more than half (52%) of all fish used for human food.

The diversification of the sector is increasingly considered to boost competitiveness and sustainability of the aquaculture activities, with mariculture including high added value creation (algae, biotechnologies), where research and innovation can be mobilised.

Important steps will be taken towards the spatial management of fisheries resources – including through Fisheries Restricted Areas (FRA), monitoring of vulnerable marine ecosystems (VMEs) and hotspots.

Greater cooperation to strengthen overall sustainability of practices and policies is essential across the Mediterranean (e.g. ongoing dialogue under the UNEP-MAP and the WestMED Initiative).

### **Maritime skills, careers and employment**

In recent years an acceleration of jobs in the aquaculture sector has been visible, with unassessed potentials remaining in other emerging sectors such as blue-biotech and renewable marine energy. The potential exists for a wide range of new employment opportunities to be enabled by a fully sustainable Blue economy.

Innovative skill-sets are essential for the Mediterranean region – training and education are therefore needed across maritime-related professions, to support technological developments and address environmental challenges. Targeted educational and employment policies should carefully reflect on regional specificities to be effective as a means to ensure greater career opportunities and quality jobs in the Blue Economy across the region.

Networks and pedagogic tools are already available but need to be further shared across regional actors. Building on existing good practices across the region, it is possible to achieve further developments in vocational skills as well as in short term training and lifelong learning.

## **5.2. BEST PRACTICES IN THE BLUE GROWTH SECTORS**

The implementation of interventions in the various sub-sectors of Blue Growth in the recent years allows the emergence of some good practices which are illustrated below. The selection of these projects as good practices was based on two criteria:

- Strong relevance with the fields covered by the Pillar 1 topics, and
- Possibility of repeatability of those projects and/or capitalization of their outcomes in the macro-region involving more than one EUSAIR countries and being funded by the ESIF and IPA mechanisms or national sources.



## Blue Technologies

### *Blue Crowdfunding-Capacity building of Blue Economy stakeholders to effectively use CROWDFUNDING<sup>25</sup> (The Blue Crowdfunding)*

Blue Economy innovation in the Mediterranean could be significantly improved, if more investment funds would be available. One possible solution is use of Crowdfunding (CF), but in the area knowledge and capacities for CF are still low in comparison to North Europe. The project's general objective is to improve innovation capacities in the Blue Growth sector by mainstreaming use of crowdfunding. **The project's ambition is to trigger change from using public funds for innovation to use crowdfunding and crowdsourcing to fund, test and validate innovative blue economy products and services.** The expected results of the project include among others:

- Capacity building of blue economy SMEs on how to use CF;
- Transnational blue crowdfunding cluster with developed CF services;
- Mainstreaming the international CF trainings in business support institutions;
- Mainstreaming policy change and recognition of using civil crowdfunding in regions.

The project concerns the development of a **One-stop-shop solution** towards funding using the instrument of Crowdfunding. Such a project will allow SMEs to have access to alternative methods of financing an aspect that is of great importance for every small, small and medium enterprises. The crowdfunding concept has the potential to further foster innovation in the macro-region by offering new sources of capital to aforementioned enterprises in the sector of Blue Technologies and reduce the funding gap for innovative start-ups.

The project is implemented by a consortium consisting of partners from Italy, Spain, Cyprus, Greece, Croatia, Belgium, Slovenia and Albania.

### *Boosting the Innovation Potential of the triple helix of Adriatic-Ionian traditional and emerging Blue Growth sectors clusters through an open source/knowledge sharing and community-based approach (BLUE BOOST)<sup>26</sup>*

Blue Boost aims at unlocking the potential of knowledge/technology transfer, transnational and cross-sectoral cooperation of key innovation actors of traditional (primary fisheries and shipbuilding) and emerging (primarily Blue Technologies-including aquaculture, green shipbuilding, robotics and new materials) **Blue Growth sectors by reinforcing the relationships and interactions within and among their clusters**

---

<sup>25</sup> On-going project under INTERREG MED 2014-2020, for more details: <https://blue-crowdfunding.interreg-med.eu/>

<sup>26</sup> Closed project funder under INTERREG ADRION 2014-2020, for more details: <https://blueboost.adrioninterreg.eu/>

**according to an open source, knowledge sharing and community-based approach.**

The specific objectives of the project are:

- To stimulate and guide innovation capacities of MSMEs/Start-ups of the 7 focused AI marine/maritime clusters;
- To test a transnational innovation voucher scheme to fund innovation and transnational/cross-sectoral cooperation between the 7 focused AI marine/maritime clusters;
- To promote a transnational innovation networking strategy and joint action plan towards a transnational cooperation among the Adriatic-Ionian marine/maritime clusters

Of course, the main result of the project is the **Blue Boost Transnational Innovation Voucher Scheme and the funding of 35 innovative MSMEs and startups**. The aforementioned enterprises had the opportunity, thanks to the vouchers, to improve their position all along the value chains of blue economy thanks to knowledge/technological skills provided by Knowledge Providers (KPs). The goal of Blue Transnational Innovation Voucher Scheme was to help MSMEs and start-ups to design and/or create, through small innovation projects, new products, services, processes or business models.

Blue Innovation Vouchers will offer Blue MSMEs the possibility to run small-scale technology transfer projects, following light, business-friendly procedures and practically without any turnover limits or co-financing obligations. At the same time, they will offer them great opportunities for competencies' development, especially on innovation development with a focus on circular economy, as well as networking.

The project was implemented by partners from Greece, Croatia, Italy and Albania.

***The Blue Biotechnology Master for a Blue Career (BBMBC Master Course)***<sup>27</sup>

BBMBC creates a completely new teaching programme focused on blue biotechnologies and dedicated to their application particularly in the health, nutrition and aquaculture. The cutting-edge sector of marine biotechnology lacks high-skilled scientists with both academic and practical knowledge. This unique public-private partnership involving academic organisations and SMEs, from France, Portugal, Spain and the United Kingdom, along with specific structures such as the CPMR Atlantic Arc Commission, set up Master's degree level in this pivotal field to sustainable global development.

The Master's curriculum is dedicated to graduate students and workers allowing them to gain expertise in blue biotech sector in ten months. The partners were research institutes from the United Kingdom, Spain, France and Portugal.

---

<sup>27</sup> Closed project co-financed by the European Maritime and Fisheries Fund (EMFF) in the framework of the European Integrated Maritime Policy, for more details: <http://www.bluecareers.org>

Thematic courses are scheduled intensively on a weekly basis. As well as educational courses, work-linked training takes place during the course on industrially-relevant problems, combining practical approaches to the latest scientific knowledge and research. Moreover, from the beginning of the master programme, each student is associated with a project led by a blue biotechnology industrial partner and hosted in this structure for the duration of the apprenticeship or internship.

Such a project could identify and expand good practices from each country involved, encourage mutual learning between EUSAIR countries and academics in the blue biotech field, address skills gaps and help raising awareness on blue careers and blue biotechnology sector.

### ***Blue Career Centre of Eastern Mediterranean and Black Sea (MENTOR)<sup>28</sup>***

The Career Centre for the Eastern Mediterranean Sea and Black Sea aims to attract young people and experienced workers and fill existing skills' gaps by supporting activities that will increase employability in key blue sectors of the region: Maritime transport (i.e. shipping, ports, ship-repairs and shipbuilding), cruise and nautical tourism, aquaculture and offshore oil and gas. The Blue Career Centre seeks to provide prospects for young jobseekers in the above sectors to support businesses in finding the right staff with proper qualifications. Consortium joins forces to:

- Attract higher education graduates or persons with a vocational/technical qualification to maritime professions through targeted and innovative education and/or training initiatives (including career guidance);
- Retrain and up-skill workers employed in other sectors and/or people currently unemployed for a job in the blue economy;
- Diversify and expand the skills of people currently employed in the blue economy to progress in their career and/or to facilitate their mobility to other maritime jobs.

**The successful operation of the first Blue Career Centre for the Eastern Mediterranean and the Black Sea is an example and model for all other sub-sea basins such as the Adriatic-Ionian Sea**, which could bring together all relevant stakeholders in the field of Blue Technologies, in a common effort to close the skill gap and tackle unemployment in the macro-region, and make blue careers more attractive to the young people. The Centre was established by partners from Greece, Cyprus, Bulgaria and Romania.

---

<sup>28</sup> Closed project co-financed by the European Maritime and Fisheries Fund (EMFF) in the framework of the "Blue Careers" call. See also: <http://www.bluecareers.org>

### **Multiple Use of Space for Island Clean Autonomy (MUSICA)<sup>29</sup>**

The overall aim of MUSICA will be achieved by developing a one-stop solution in a Multi-Use Platform, which will produce electricity and fresh water using renewable power from the wind and waves. MUSICA will provide a full suite of Blue Growth solutions for a small island including three forms of renewable energy (RE): wind, Photovoltaic (PV) and wave, innovative energy storage systems on the MUP, smart energy system for the island, desalinated water and green support services for island's aquaculture.

The installation of the MUP will mean greater autonomy for the island where will be installed by leveraging the multiple use of space and co-location. Local RES generation and battery storage combined with a source of desalinated water will reduce the islands dependence on the mainland for electricity and water. MUSICA MUP will also serve the needs of local offshore aquaculture, providing energy, fish feed and fresh water for the cages, and providing sheltered waters for the cages in the lee of the platform, as well as it will also provide electricity and water recharging station services buoy for leisure boats. Both solutions are in demand, as aquaculture is traditionally a nearshore facility and highly reliant on diesel fossil fuel for power, whereas, the electricity and water recharging station services for boats will promote and support island tourism where infrastructure may not exist to facilitate tourist boats

The project demonstrates that multi-use platforms are viable infrastructures for multiple RES, desalination, aquaculture and BG services for remote and island communities of the macro-region that can share the same space and work synergistically together, sharing supply chains and reducing operating and maintenance costs and solving the increasing demand for space. The project is implemented by partners from Ireland, United Kingdom, Greece, Malta, Spain, France and Denmark.

### **Multi-Use offshore platforms demonstrators for boosting cost-effective and eco-friendly production in sustainable marine activities (UNITED)<sup>30</sup>**

The UNITED project runs from 2020 until 2023 and provides evidence for the viability of ocean multi-use through the development of five demonstration pilots in the real European marine environment:

- Offshore wind & Tourism-Denmark
- Aquaculture (fisheries) & Tourism (leisure scuba diving)-Greece
- Blue mussels, Seaweed & Offshore wind energy-Germany
- Offshore wind and Flat Ouster Aquaculture & Restoration-Belgium

---

<sup>29</sup> On-going research project co-financed by Horizon 2020 programme. for more details <https://musica-project.eu/>

<sup>30</sup> On-going research project co-financed by Horizon 2020. For more details: <https://www.h2020united.eu/>

- Offshore seaweed & Floating solar energy-Netherlands

UNITED will enhance the technology readiness levels of multi-use solutions, involving industrial actors, and integrating knowledge, technologies and facilities. It will propose business models to reduce operational costs and generate benefits to all sectors involved.

Demonstrating the success of the UNITED pilots will boost the capacity of the Blue Economy within European waters and increase the efficiency and multi-functionality between traditionally competing interests in these sectors.

**UNITED project seems to be a good example of the different combinations of pilot applications in real marine environment, which could be applied in the Adriatic-Ionian Sea, based on the needs and natural resources of each country, contributing to a more sustainable and efficient use of marine resources and providing tangible economic and environmental benefits.**

The project consortium comprises partners from France, The Netherlands, Denmark, Greece, Belgium and Germany.

## Fisheries and Aquaculture

### *The Jabuka/Pomo Pit Fisheries Restricted Area between Croatia and Italy*

The Fisheries Restricted Area (FRA) of Jabuka/Pomo Pit between Croatia and Italy that established to protect fish habitats, is undoubtedly a success story in the Adriatic Sea and highlights the efforts of the European Union to address overfishing in the Mediterranean Sea<sup>31</sup>. Jabuka (which means “apple” in Croatian) is a tiny uninhabited volcanic island in the Adriatic Sea, with difficult and limited access, but its name is now increasingly symbolic as it represents hope for a healthier and thriving Mediterranean Sea. The almost 3000 square kilometers of the Jabuka/Pomo Pit area are a vital spawning ground for hake (*Merluccius merluccius*) and Norway lobster (langoustine) (*Nephrops norvegicus*). It has been protected from overfishing since 17 October 2017 when scientists, fishermen, NGOs and the Croatian and Italian authorities fought for a breakthrough agreement.

After many years of vivid discussions, the General Fisheries Commission for the Mediterranean (GFCM) adopted the EU proposal for the establishment of a FRA in the Jabuka/Pomo Pit banning demersal fisheries<sup>32</sup>. This proposal divides the FRA in 3 areas (see Figure 21):

---

<sup>31</sup> See: <https://www.msp-platform.eu/story-1-italycroatiaslovenia-fisheries-and-conservation>

<sup>32</sup> Recommendation GFCM/41/2017/3 on the establishment of a fisheries restricted area in the Jabuka/Pomo Pit in the Adriatic Sea. See: <https://gfcmlib.org/CoC/Decisions%20Texts/Forms/AllItems.aspx?id=%2FCoC%2FDecisions%20Texts%2F>

- **Zone A** for which any recreational and professional fishing activity with bottom-set nets, bottom trawls, set longlines and traps is prohibited.
- **Zone B** where fishing activities with bottom-set nets, bottom trawls, set longlines and traps is prohibited from 1 September to 31 October each year and starting from 2017 and allowed (for a maximum of one-two fishing days per week depending from gears) the rest of the year, provided that the vessel and/or its master is in possession of a specific authorization and that historical fishing activities in zone B are demonstrated;
- **Zone C** where fishing activities with bottom-set nets, bottom trawls, set longlines and traps and recreational fisheries are prohibited from 1 September to 31 October each year (starting from 2017) and allowed if the vessel or its master is in possession of a specific authorization and if historical fishing activities in zone C are demonstrated. In zone C bottom trawls shall be entitled to fish only on specific days and hours.

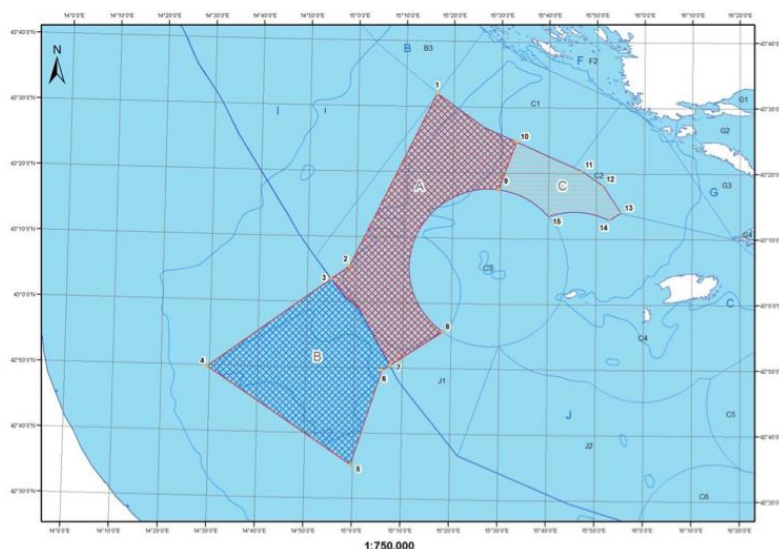


Figure 21. Spatial subdivision of the Jabuka/Pomo Pit FRA between the three areas (A, B, C) each with different types of restrictions based on GFCM Recommendation. Source: GFCM (2017)

The agreement was not easy. For many years, national and supranational authorities, research institutes and NGOs have attempted to protect the valuable marine habitat of Jabuka/Pomo Pit in the Central Adriatic. Strong opposition from fishing associations and continuous fishing regardless of spatial management measures were major causes of conflict. Scientists from the FAO AdriaMed Project had long called for wider protection of the Jabuka/Pomo Pit, and a range of local and international organisations, administrations, individuals and NGOs were extensively involved in this process. This conflict is not directly dealt with through MSP, but rather through research advice, management of fishing resources, and stock assessment. However, new initiatives and projects have emerged in recent years that are using more spatial data in their analysis and providing advice to management and spatial planning efforts.

[REC%2ECM%5FGFCM%5F41%5F2017%5F3%2De%2Epdf&parent=%2FCoC%2FDecisions%20Texts&p=true&originalPath=aHR0cHM6Ly9nZmNtLnNoYXJlcG9pbmQuY29tLzpiOi9nL0NvQy9FWs1aOUZFeC00MUt1M0INN1VRZ1g5a0J5ZGh5bmFsOUNBT3BscVZaVEVnbnV3P3J0aW1lPXdsS3ZmTE1DMlVn](#)

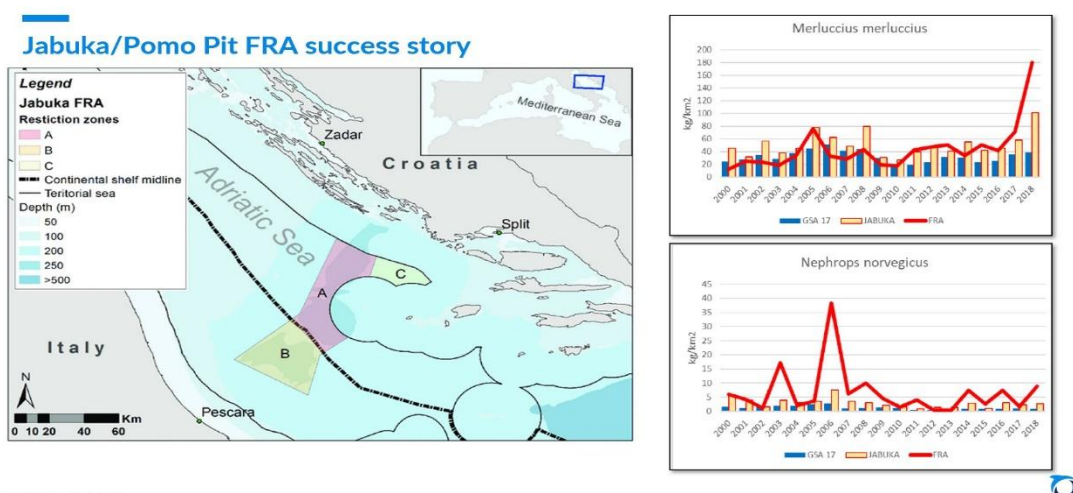


Figure 22. The Jabuka Pomo Pit FRA in Adriatic is a success story to replicate: surveys showed impressive increase of biomass for overfished hake & nephrops, while fishers saw increased catches. Source: Oceana.

Due to its natural characteristics, the Jabuka/Pomo Pit area has been recognised as a critical habitat for demersal species, in particular, for hake and Norway lobster. However, these species have commercial value and are subject to persistent overfishing. The negative trends in demersal stock biomass over the past 20 years showed that the resource was exploited at unsustainable levels.

Scientific advice, initiatives and temporal closures have taken place in the Jabuka /Promo pit since 1992, including the Croatian declaration in 2003 of an Ecological and Fishery Protection Zone (ZERP). Greenpeace’s proposal in 2004 for setting up a network of marine reserves in the Mediterranean also included the Jabuka/Pomo Pit.

According to a recent study of Cabral et al. (2020)<sup>33</sup>, protecting just five percent more of the ocean would increase future catches on a global scale by at least 20%.

The first results of scientific surveys in 2019 in terms of biomass relative index and length frequency distribution and average length of main demersal species show that the percent of biomass was high within the pit and overall increasing in the FRA<sup>34</sup>. On the basis of the initial results it is evident that the Jabuka/Pomo pit FRA is considered a successful example of efficient spatial planning and international cooperation. In fact, the bottom-up approach used to determine the FRA – involving all relevant stakeholders and allowing for the first time to reach an agreement on a big area in extra-territorial waters – proved key in ensuring ownership of those involved and a proper implementation of the

<sup>33</sup> Cabral Reniel B., Darcy Bradley, Juan Mayorga, Whitney Goodell, Alan M. Friedlander, Enric Sala, Christopher Costello, Steven D. Gaines (2020). A global network of marine protected areas for food. Proceedings of the National Academy of Sciences Nov 2020, 117 (45) 28134-28139; DOI: 10.1073/pnas.2000174117.

<sup>34</sup> Fourth meeting of the Subregional Committee for the Adriatic Sea (SRC-AS). See: <http://www.fao.org/gfcm/technical-meetings/detail/en/c/1198579/>

measures. Additionally, the first scientific evidence gathered was promising, as larger catches and size of individuals (especially for hake and Norway lobster) was observed, both inside the FRA and in general in the GSA 17, and the overall perception, including from fishers, was that the FRA was contributing to the recovery of the stock. It was recalled that one of the FRA objectives was also the protection of vulnerable marine ecosystems (VMEs), which should be taken well into account during the monitoring.

### ***The Norwegian approach to manage and valorise discards***

By-products from Norwegian fisheries and fish farming consist of viscera (liver, roe, stomachs, etc.), heads, backbones, cuts and rejected fish from processing. The by-products are generated when the fish is gutted, headed and further processed - either on-board fishing vessels or in processing plants on shore. Silage production, i.e. formic acid hydrolysis of ground by-products, has become a simple and cheap way of preservation of wastes at the local fish processing factory that produce fish protein concentrate (FPC). FPC is used as a component of fish and livestock feed. Norwegian plants produce fresh salmon oil from by-products. The oil is extracted before any acid preservation for silage. Salmon oil is considered a high-quality product and is exploited as an ingredient in food products, as a dietary supplement and for technical uses. Raw/frozen offal is supporting the fur industry as feed for fox and mink. Human food from fish by-products includes liver oil from cod and other white fish species, cod liver, heads of cod, wolf-fish and salmon, minced cut-off, cod roe, etc.

RUBIN was a Norwegian research fund that was operated in Norway from 1992 until 2012 which had the sole purpose of contributing to increased utilisation of by-products<sup>35</sup>. Much of the advances that have been made in utilising Rest Raw Materials (RRMs) that have come from projects funded by RUBIN. These include for example production of silage, Fish Protein Hydrolysate, FPC, drying of heads and bones, collection of RRMs, marketing of by-products etc. The Norwegian Seafood Research Fund (FHF) has now taken over the responsibilities of RUBIN. This approach is considered as a best practice example to fine tune and coordinate actions across the Mediterranean Sea to increase utilisation and valorisation of discards, aquaculture/fisheries/processing by-products and by-catch in the Mediterranean Sea.

### ***Utilisation of cod in Iceland (100% Fish Project)***

Utilization of cod in Iceland is amongst the highest in the world. In the last 20 years. Traditional fishing technologies and fish processing have evolved rapidly, which has substantially increased the revenue of Icelandic fisheries. Icelandic fisheries have evolved strategies and techniques to make money out of many by-products. In most

---

<sup>35</sup> See: <https://www.rubin.no/index.php/en/facts-about-rubin>



parts of the world the other products of the fish are still treated as waste. Studies by the Iceland Ocean Cluster have shown that Iceland is using over 80% of each fish while most fisheries nations use around 50%. Leading fisheries in Iceland have announced their aim is to utilize 100% of the fish<sup>36</sup>.

Iceland is a great example of what can be achieved with more fish utilization. The use of more by-products in the Icelandic fisheries which (which increased by around 3000% in the last 25 years) has led to an independent industry creating at least around 6-700 direct jobs and an annual value which exceeds USD 500 million. Many of these jobs are in rural areas - coastal towns.

The Iceland Ocean Cluster has played a crucial role as they have brought more investors into this field and also invested themselves in start-ups. The Ocean Cluster Network, initiated by the Iceland Ocean Cluster, consists of ocean cluster organisations in the US, Iceland and Norway which aim is to strengthen innovation in seafood and full utilisation of seafood products. As of now various projects which aim to use more of whitefish, salmon and shellfish are underway within the Ocean Cluster Network, ranging from creating skin care products from whitefish skins to deriving protein from lobster shells.

In Iceland they believe it is only a matter of time when fisheries will stop value discarding. The 100% Fish Project can hopefully enhance the speed of this change. Looking back 20 years, the liver was the only part of the rest of the raw material that had some “value.” The rest of the fish was mostly treated as waste with no value. Over these 20 years, new markets and companies capable of handling by-products have been developed in various areas. A good example of a company is Copalis at Boulogne-sur-Mer in northern France<sup>37</sup>. The original aim of Copalis was to add value to by-products generated by fisheries. What began as a smelly by-product reduction plant has become a world class by-product producer for one of Europe’s leading fish processing ports. Another example is Haustak in Iceland, a leading fish drying plant that uses geothermal heat<sup>38</sup>. In collaboration with the Iceland Ocean Cluster, Haustak established Codland, a company which aim is to create more value from each fish.

In Iceland, many small plants are processing cod by-products for fish leather plant, enzymes, protein, omega, canning and an upcoming fish collagen plant. Codland<sup>39</sup> utilizes biotechnical solutions to create valuable, new products from underutilized raw

---

<sup>36</sup> See Mission of the 100% Fish Project in Iceland: <https://www.sjavarklasinn.is/en/wp-content/uploads/2018/05/100-percent-fish-utilization.pdf>

<sup>37</sup> See: <https://www.copalis.fr/>

<sup>38</sup> See: <https://haustak.is/>

<sup>39</sup> Codland (founded in 2012) is a company that emerged when the Iceland Ocean Cluster brought together seven fishing and ocean-related companies and set the course to create maximum value from every part of the fish. See: <https://codland.is/> and <http://www.sjavarklasinn.is/en/>

material from the fishing industry (fish meal, fish oil, mineral supplements and Hydrolyzed Marine Collagen)<sup>40</sup>.

Icelandic seafood start-ups are making new products from seafood by-products. For example, fish skin can be made into fish leather. This fish leather is worth wholesale around USD 8 per skin. The skin can also be developed into fish collagen which is a protein good for skin and joints. A kilo of fish collagen is USD 14 in bulk. If the fish collagen is sold in retail packaging, the kilo is worth much more. A new fish collagen plant which is being designed in Iceland is owned by four of the large fisheries in Iceland. Finally, the fish skin can be developed as wound care. Bound into dressings for human wounds, the fish skin acts as a structure around which healthy cells can grow. The company Kerecis in Iceland are already global leaders in this field<sup>41</sup>. This product has shown to have some superior qualities for wound care – and successfully used where traditional methods of wound care have been inadequate

The technological evolution in the seafood industry means a much stronger and competitive industry in the years to come. But the need for the superb natural seafood proteins can make the industry not only more competitive but also the next generation of fishermen may become pharmacists or skin care manufacturers! This is the core message of the 100% Fish Project.

## Maritime and Marine Governance and Services

### *Manufacturing Education and Training Governance Model for Industry 4.0 in the Adriatic-Ionian Area (FUTURE 4.0)*<sup>42</sup>

One of Europe's major weaknesses lies in its inferiority, when compared to other developed economies of the planet, in terms of transforming the results of technological research and skills into innovations and competitive advantages.

To fill this gap, the **INTERREG - ADRION project Future 4.0** has worked for three years and is now ready to present results and share outcomes<sup>43</sup>. In particular, **the project aimed to face the challenges brought about by the Fourth industrial revolution with a specific focus to the maritime, naval and shipbuilding sector**. This sector - just like or even more than other manufacturing sectors - is affected by the progressive introduction in productive processes of cyber - physical systems, which combine traditional processes with artificial intelligence, and which are tearing down the borders

---

<sup>40</sup> See the products of Codland at: <https://codland.is/products/>

<sup>41</sup> See: <https://www.kerecis.com/>

<sup>42</sup> On-going project funded from INTERREG ADRION 2014-2020. For more details: <https://future4.adrioninterreg.eu/>

<sup>43</sup> [https://future4.adrioninterreg.eu/news/press-release\\_project-future-4-0\\_results-and-perspectives/attachment/the-interreg-adrion-project-future-4-0-results-perspectives](https://future4.adrioninterreg.eu/news/press-release_project-future-4-0_results-and-perspectives/attachment/the-interreg-adrion-project-future-4-0-results-perspectives)

between the real world and the virtual one. Adriatic - Ionian societies, industries and economies are involved as well in this transformation, with effects on production, on relations between companies and on human capital development. To face this challenge, the project aimed to design an Industry 4.0 model to improve the competitiveness of the maritime and shipbuilding sector in two Italian regions (Veneto and Apulia), in Croatia, Greece and Albania. The partnership Future 4.0 is multi actor and encompass public and private bodies (such as the Veneto Region that is the lead partner, the Primorje - Gorski Kotar county, the Chamber of commerce of Tirana, The Chamber of Commerce of Achaia), universities (The Polytechnic of Bari, the University of Rijeka, the University of Patras, the Mediterranean University of Albania) and company support organisations (Confindustria Veneto SIAV), all active in promoting Industry 4.0.

An exhaustive research activity was the steppingstone of the project aiming at investigating the characteristics of partner regions in terms of economy, development trends, demography, and specificities of the maritime and nautical sector. The analysis was also the occasion to consider the skills and the professional profiles currently in use in the shipbuilding sector and to discuss with companies the skills and profiles to implement Industry 4.0. This analysis of the industrial needs was at the very heart of the design of the **Smart learning model**, i.e., partners' approach to support companies in upskilling and reskilling their workforce. The model was developed within the concept of knowledge transfer, which is not limited to the sole idea of technological transfer but deals also with the need to prepare the company to acquire new external knowledge and to transform it to make it usable in the receiving organization. An on-line platform was designed to support the application of the learning model and to make available an open learning environment.

**The learning model was tested in the five partner regions through the realization of as many local action plans**, which involved 60 public and private stakeholders and 132 companies of the maritime industry. The plans introduced enterprises to the fundamentals of enabling technologies linked to Industry 4.0, such, for instance, Cloud computing, augmented reality, and advanced manufacturing systems. The plans were useful as well to validate the learning model and to propose **four innovative professional profiles** to improve the learning offer linked to Industry 4.0 in the shipbuilding sector. The four profiles are: IT Manager, Technical Area - Research and Development Manager, Supply Manager, and Human Resource Manager.

Not only did **project results** meet project objectives, but they also had three positive consequences on the maritime and naval industry in the Adriatic - Ionian area. First, **companies transferred new knowledge linked to the Fourth industrial revolution**, improving their potential in terms of innovation, effectiveness, cost reduction, new operative and managerial processes, and development of new skills.

**Second, links, partnerships and connections between enterprises, knowledge providers, universities and public administrations have been created**; these links

strengthen the sense of belonging of operators who, in implementing Industry 4.0, are facing common challenges and problems. Third, **the project dealt with the issues of the Fourth industrial revolution, mixing them with other cross-cutting issues linked to all productive sectors**, like climate change, the progressive exhaustion of resources, demography. As a result, sustainability itself of the maritime sector is increased and the contribution of the naval sector to the development of the Adriatic - Ionian area is empowered. Partners decided at the end of the project to subscribe a formal cooperation agreement, to continue their collaboration on Industry 4.0 in the maritime sector, to continue working with the Future 4.0 platform and to go on supporting companies in the digital transformation processes.

### *Adriatic-Ionian Maritime Spatial Planning (ADRIPLAN)<sup>44</sup>*

The ADRIPLAN project was implemented by 17 partners from 4 countries of the Adriatic –Ionian macro-region: 8 Scientific Partners and 9 Institutional Partners (inner circle). 17 Observers (outer circle) also contributed to the project.

ADRIPLAN aimed to deliver a commonly-agreed approach to cross-border Maritime Spatial Planning in the Adriatic-Ionian region, considered as a whole, but focused mainly on two focus areas:

1. Northern Adriatic Sea
2. Southern Adriatic/Northern Ionian Sea.

The proposed approach was developed with the support of institutional partners and observers and the involvement of stakeholders of the area and provided recommendations for the evaluation of cross-border MSP, based on an integrated assessment (environmental, legal, administrative, economic and social) and taking into account multiple demands and potentials. It promotes the harmonized implementation under an ecosystem-based approach of the EU legislative framework on marine and maritime issues.

Besides the above-mentioned approach and methodology, the main ADRIPLAN deliverables include downscaling and application of the developed methodology in the two project focus areas, the ADRIPLAN Data Portal, the MSP tools (conflict score and cumulative impact tools).

Core philosophy of the project was the **development of operation plans** which prioritise the development of different maritime activities while preventing conflicts and ensuring the good status of marine ecosystem. To achieve that the involvement of regional and governmental stakeholders has been recognized as crucial factor that ensures

---

<sup>44</sup> Project funded by the European Commission – DG Maritime Affairs and Fisheries (DG MARE) under the theme "Maritime Spatial Planning (MSP) in the Mediterranean Sea and/or the Black sea". For more details: <http://adriplan.eu>

acceptance of the plans while create the necessary cross-border collaboration. In this context, the investment environment is improved through confidence, based on the special characteristics of each region. Finally, the implemented approach generates the links for a coherence between terrestrial and Maritime Spatial Planning and Integrated Coastal Management (ICM) practices.

For the evaluation of the potential impacts of the range of maritime activities on the environment, the cumulative impact has been used as the main methodological tool within ADRIPLAN, making possible the identification of the regions more exposed to the anthropogenic pressures.

### *Innovation Policies for Sustainable European Islands<sup>45</sup>*

The project focuses on setting the conditions to accelerate the innovation in European island regions. The project's motivation is the finding that the islands, due to their geography, are characterised by isolation, limited economic activity and loss of local population, while on the other hand there is a range of advantages related to the natural environment and resources and the stronger links of the communities. These conditions are not well exploited from the side of island communities and thus there are untapped growth potentials.

In this context, the project aims at addressing the opportunities of diversification of island economies through improving their innovation policies while at the same time it focuses on enhancing the knowledge of policy makers and decision makers about innovation concepts, establishing an innovative environment to support young entrepreneurship, and introducing new products and services.

To achieve this transition the partners focused on the improvement of innovation policy at regional level, which is achieved through the activation and better involvement of local populations, while targeting young people for depicting their views on young entrepreneurship and the attraction factors. The consortium produced handbooks and action plans so as practically to facilitate the re-orientation of innovation policy.

The project partnership comprises islands and island regions from The Netherlands, Denmark, Portugal, Estonia, France and Greece.

---

<sup>45</sup> On-going project, funded from INTERREG EUROPE 2014-2020. For more details: <https://www.interregeurope.eu/islandsinnovation/>

### **5.3. THE BLUE GROWTH DIMENSION IN THE PROGRAMMING PERIOD 2021-2027**

#### **5.3.1. The Cohesion policy in 2021-2027**

The focus of the EU Cohesion policy in 2021-2027 remains the sustainable economic competitiveness through research and innovation, digital transition, the European Green Deal objectives as well as the promotion of the European Pillar of Social Rights.

The **new Common Provisions Regulation** for the funding of the Cohesion Policy in the programming period 2021-2027 lays down the financial rules for the European Regional Development Fund ('ERDF'), the European Social Fund Plus ('ESF+'), the Cohesion Fund, the Just Transition Fund ('JTF'), the European Maritime, Fisheries and Aquaculture Fund ('EMFAF'), the Asylum and Migration Fund ('AMIF'), the Internal Security Fund ('ISF') and the Border Management and Visa Instrument ('BMVI'). In the new programming period, the eleven thematic objectives used in 2014-2020 cohesion policy have been replaced by **five Policy Objectives** for ERDF, ESF+, the Cohesion Fund and the EMFAF.

The **ERDF** and the **Cohesion Fund (CF)** contribute to the overall objective of strengthening the Union's economic, social and territorial cohesion. The ERDF contributes to reducing disparities between the levels of development of the various regions within the Union, and to reducing the backwardness of the least favoured regions, through participation in the structural adjustment of regions whose development is lagging behind and in the conversion of declining industrial regions, including by promoting sustainable development and addressing environmental challenges. The Cohesion Fund contributes to projects in the field of environment and trans-European networks in the area of transport infrastructure.

The five **Policy Objectives** and the **Specific Objectives** under each Policy Objective, for the ERDF and the Cohesion Fund, are illustrated below.

<b><u>Policy Objective 1: A more competitive and smarter Europe by promoting innovative and smart economic transformation</u></b>
---

<b>Specific Objectives:</b>
-----------------------------

- |   |
|---|
| <ol style="list-style-type: none"><li>1. enhancing research and innovation capacities and the uptake of advanced technologies;</li><li>2. reaping the benefits of digitization for citizens, companies and governments;</li><li>3. enhancing growth &amp; competitiveness of SMEs;</li><li>4. developing skills for smart specialization, industrial transition and entrepreneurship.</li></ol> |
|---|

**Policy Objective 2: A greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation and risk prevention and management**

**Specific Objectives:**

1. promoting energy efficiency measures;
2. promoting renewable energy;
3. developing smart energy systems, grids and storage at local level;
4. promoting climate change adaptation, risk prevention and disaster resilience;
5. promoting sustainable water management;
6. promoting the transition to a circular economy;
7. enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution.

**Policy Objective 3: A more connected Europe by enhancing mobility and regional ICT connectivity**

**Specific Objectives:**

1. enhancing digital connectivity;
2. developing a sustainable, climate resilient, intelligent, secure and intermodal TEN-T;
3. developing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility;
4. promoting sustainable multimodal urban mobility.

**Policy Objective 4: A more social and inclusive Europe implementing the European Pillar of Social Rights**

**Specific Objectives:**

1. enhancing the effectiveness of labour markets and access to quality employment through developing social innovation and infrastructure;
2. improving access to inclusive and quality services in education, training and lifelong learning through developing infrastructure;
3. increasing the socioeconomic integration of marginalised communities, migrants and disadvantaged groups, through integrated measures including housing and social services;
4. ensuring equal access to health care through developing infrastructure, including primary care.

**Policy Objective 5: A Europe closer to citizens by fostering the sustainable and integrated development of all types of territories and local initiatives more social and inclusive Europe implementing the European Pillar of Social Rights**

**Specific Objectives:**

1. fostering the integrated social, economic and environmental development, cultural heritage and security in urban areas;
2. fostering the integrated social, economic and environmental local development, cultural heritage and security, including for rural and coastal areas also through community-led local development.

The **European Social Fund (ESF+)** is the EU's main instrument to invest in people and to implement the European Pillar of Social Rights. More specifically, the ESF+ aims to support Member States to achieve high employment levels, fair social protection and a skilled and resilient workforce ready for the future world of work, in line with the principles set out in the European Pillar of Social Rights proclaimed by the European Parliament, the Council and the Commission on 17 November 2017. The Fund supports complement and add value to the policies of the Member States to ensure equal opportunities, access to the labour market, fair working conditions, social protection and inclusion, and a high level of human health protection.

The ESF+ supports eleven specific objectives in the policy areas of employment, education, social inclusion and health, contributing to the fourth Policy Objective “A more social Europe - Implementing the European Pillar of Social Rights” of the Cohesion Policy 2021-2027.

**Policy Objective 4: A more social and inclusive Europe implementing the European Pillar of Social Rights**

**Specific Objectives (ESF+)**

- (i) improving access to employment of all jobseekers, in particular youth and long-term unemployed, and of inactive people, promoting self-employment and the social economy;
- (ii) modernising labour market institutions and services to assess and anticipate skills needs and ensure timely and tailor-made assistance and support to labour market matching, transitions and mobility;
- (iii) promoting women's labour market participation, a better work/life balance including access to childcare, a healthy and well-adapted working environment addressing health risks, adaptation of workers, enterprises and entrepreneurs to change, and active and healthy ageing;
- (iv) improving the quality, effectiveness and labour market relevance of education and training systems, to support acquisition of key competences including digital skills;
- (v) promoting equal access to and completion of, quality and inclusive education and training, in particular for disadvantaged groups, from early childhood education and care through general and vocational education and training, and to tertiary level, as well as adult education and learning, including facilitating learning mobility for all;



- (vi) promoting lifelong learning, notably flexible upskilling and reskilling opportunities for all taking into account digital skills, better anticipating change and new skills requirements based on labour market needs, facilitating career transitions and promoting professional mobility;
- (vii) fostering active inclusion with a view to promoting equal opportunities and active participation, and improving employability;
- (viii) promoting socio-economic integration of third country nationals and of marginalised communities such as the Roma;
- (ix) enhancing the equal and timely access to quality, sustainable and affordable services; modernising social protection systems, including promoting access to social protection; improving accessibility, effectiveness and resilience of healthcare systems and long-term care services;
- (x) promoting social integration of people at risk of poverty or social exclusion, including the most deprived and children;
- (xi) addressing material deprivation through food and/or basic material assistance to the most deprived, including accompanying measures.

Furthermore, the proposal for the new Regulation<sup>46</sup> on specific provisions for the European Territorial Cooperation Goal, sets the framework for the implementation of Cross Border Cooperation and Transnational programmes in the new period.

Under the **European Territorial Cooperation goal (Interreg)**, the ERDF and, where applicable, external financing instruments of the Union shall support the following components:

**(1) Cross-border cooperation between adjacent regions to promote integrated regional development:**

- a. Internal cross-border cooperation between adjacent land border regions of two or more Member States or between adjacent land border regions of at least one Member State and one or more third countries.
- b. External cross-border cooperation, between adjacent land border regions of at least one Member State and of one or more of the following: (i) IPA beneficiaries, (ii) partner countries supported by NDICI, (iii) the Russian Federation, for the purpose of enabling its participation in cross-border cooperation also supported by NDICI.

**(2) Transnational cooperation and maritime cooperation over larger transnational territories or around sea-basins, involving national, regional and local programme partners in Member States, third countries and partner countries and in Greenland, with a view to achieving a higher degree of territorial integration.**

---

<sup>46</sup> REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on specific provisions for the European territorial cooperation goal (Interreg) supported by the European Regional Development Fund and external financing instruments {SEC(2018) 268 final} - {SWD(2018) 282 final} - {SWD(2018) 283 final}

**(3) Outermost regions' cooperation among themselves and with their neighbouring third or partner countries or OCTs, or several thereof, to facilitate their regional integration in their neighbourhood.**

**(4) Interregional cooperation to reinforce the effectiveness of cohesion policy by promoting:**

- a. exchange of experiences, innovative approaches and capacity building in relation to:
  - (i) the implementation of Interreg programmes; (ii) the implementation of Investment for jobs and growth goal programmes, in particular with regard to interregional and transnational actions with beneficiaries located in at least one other Member State; (iii) the setting-up, functioning and use of European groupings of territorial cooperation (EGTCs)
- b. analysis of development trends in relation to the aims of territorial cohesion.

**(5) Interregional innovation investments through the commercialisation and scaling up of interregional innovation projects having the potential to encourage the development of European value chains.**

The main novelties under the new ETC Regulation, compared to the previous period, include:

- A shift from three to five cooperation strands (components): concentration of the cross-border cooperation component on land borders; integration of cross-border cooperation on maritime borders into an enlarged 'transnational cooperation and maritime cooperation' component; limitation of the interregional cooperation component to two programmes, instead of four; creation of two new components, one dedicated to outermost regions' cooperation and one on 'Interregional Innovation Investments', a new tool to help actors involved in smart specialisation strategies cluster together;
- The incorporation of cooperation outside the EU;
- The definition of two additional Interreg-specific objectives, one to support strengthening institutional capacity and enhancing legal and administrative cooperation ('A better Interreg governance'), the other to address specific external cooperation issues such as safety, security, border crossing management and migration ('A safer and more secure Europe');
- The introduction of specific provisions for small project funds;
- The introduction of a common set of result indicators for Interreg programmes.

With a budget of **€8,050 million**, the 6th generation of Interreg will support cooperation between regions, citizens and economic stakeholders over their respective land and maritime borders. The new legislation will also cover the cooperation between regions at transnational level in the framework of the Macro-regional and Sea basin Strategies: Baltic, **Ionian/Adriatic** and Black seas, Danube and Alps.

For the first time, a specific allocation will be dedicated to strengthening the cooperation of outermost regions with their neighbouring environment, such as the Caribbean regions, to stimulate economic exchanges among regional partners and their mutual development.

Interregional cooperation will also continue to promote exchange of expertise, good practices and capacity building through a dedicated set of programmes: Interreg Europe, Urbact, Interact and ESPON.

The main elements of December's 2020 compromise include:

- The split of allocations for each specific strand:
  - €5 800 million for cross border cooperation;
  - €1 467 million for transnational cooperation;
  - €490 million for interregional cooperation;
  - €280 million for outermost regions.
- A specific EU co-financing rate of 80%, increased to 85% for outermost regions, agreed upon in the Common Provisions Regulation.
- Provisions on thematic concentration, including an obligation to support measures contributing to the achievement of the European Green Deal as well as measures falling under the European Social Fund Plus Regulation, between internal land borders. They also encourage new specific objectives under Interreg, aiming in particular to make Europe safer and more secure.
- Flexibility provisions facilitating the support to small projects, including people-to-people actions.

**EUSAIR Pillar 1 “Blue Growth” interventions in the new programming period will be implemented mainly under Policy Objectives 1, 2, 4 and 5. In particular, the potential areas for maritime cooperation and investment under each Policy Objective are as follows<sup>47</sup>:**

**Policy Objective 1: a more competitive and smarter Europe by promoting innovative and smart economic transformation**

Potential areas for maritime cooperation and investment

- ✓ Support cooperation in innovation in Blue Economy sectors
- ✓ Foster maritime interregional cluster development and blue SMEs

---

<sup>47</sup> Pascal Boijmans, European Commission, DG REGIO, The Maritime dimension of INTERREG 2021-2027, November 2020.

- ✓ Support cooperation on innovation in and around ports
- ✓ Support R&I in blue economy traditional and emerging sectors
- ✓ Fostering investments and entrepreneurship

**Policy objective 2: a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation and risk prevention and management**

Potential areas for maritime cooperation and investment

- ✓ Protection and sustainability of the marine ecosystem
- ✓ Addressing marine pollution and plastic litter
- ✓ Developing marine renewable energy
- ✓ Cooperation on speed up climate adaptation and risk prevention
- ✓ Cooperation on boosting blue circular economy
- ✓ Move to sustainable consumption and production patterns
- ✓ Biodiversity and marine habitat conservation
- ✓ Coastal management

**Policy objective 4: a more social and inclusive Europe implementing the European Pillar of Social Rights**

Potential areas for maritime cooperation and investment

- ✓ Promote blue skills and blue careers
- ✓ Invest in blue skills
- ✓ Promote and finance local blue culture heritage in sustainable tourism

**Policy objective 5: a Europe closer to citizens by fostering the sustainable and integrated development of all types of territories urban, rural and coastal areas and local initiatives**

Potential areas for maritime cooperation and investment

- ✓ Promote ocean and sea literacy
- ✓ Promote and finance local blue culture heritage in sustainable tourism

As in the current programming period the ESIF are going to play an important role in funding the Blue Growth interventions under the EUSAIR Pillar 1. The first Specific Objective of the new Cohesion Policy provides the framework for funding projects in the topic of Blue Technologies, while under the CBC and Transnational programmes macro-regional projects can be approved serving the EUSAIR priorities in this specific topic. The same way projects on Maritime and Marine Governance and Services could be funded from ERDF or even ESF+ (e.g. ESF projects in coastal regions boost training and

education in the marine and maritime sectors), approved under regional operational programmes, national operational programmes or programmes under the goal of Territorial Cooperation.

Furthermore, the new European Maritime, Fisheries and Aquaculture Fund (EMFAF) will have an important role in the EUSAIR Pillar 1 implementation, due to its direct relevance with the topic of Fisheries and Aquaculture. The main provisions of the new (under approval) EMFAF Regulation are illustrated briefly in section 4.2.2.

### **5.3.2. The European Maritime, Fisheries and Aquaculture Fund**

Through its **Common Fisheries Policy (CFP)** the European Union has exclusive competence for the conservation of marine biological resources, both in EU waters and in relation to its international obligations. The CFP also includes areas of shared competence between the EU and its Member States, where the subsidiarity principle applies. The **main objective** of the CFP is to ensure that fishing and aquaculture activities are environmentally sustainable and managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies.

The European Maritime and Fisheries Fund (EMFF) provides the EU and the Member States with the financial means to support and implement the objectives of the CFP. In addition, the EMFF also serves as a tool to sustain funding for the implementation and development of an Integrated Maritime Policy (IMP) for the EU. Its objective is to support the sustainable use of seas and oceans and to develop coordinated, coherent and transparent decision-making in relation to all other policies affecting the oceans, seas, islands, coastal and outermost regions and maritime sectors (such as transport, research and technological development, energy, and tourism).

As part of the next long-term EU budget 2021-2027, the European Commission proposes to renew the EMFF in order to continue to support the Common Fisheries Policy objectives, the Union's maritime policy and the Union's international commitments in the field of ocean governance. Besides the EMFF, the Commission also proposes to renew the budget allocated for the international dimension of the CFP.

For the new **European Maritime, Fisheries and Aquaculture Fund** (as EMFF has been renamed in the new programming period) the Commission is proposing €6,108 billion under a simpler, more flexible fund for European fisheries and the maritime economy.

The new Fund continues to support the European **fisheries sector** towards more sustainable fishing practices, with a particular focus on **supporting small-scale fishermen**. It will also help unleash the growth potential of a **sustainable Blue Economy** towards a more prosperous future **for coastal communities**. For the first time, it will contribute to strengthening international ocean governance for safer, cleaner,

more secure, and sustainably managed seas and oceans. The new EMFAF also includes provisions to help **respond to exceptional crises** that cause market disruptions e.g. temporary storage measures or compensation for additional costs. Finally, the Commission is reinforcing the **environmental impact** of the Fund with a focus on protecting marine ecosystems and an expected contribution of 30% of its budget to **climate change mitigation and adaptation**, in line with the commitments agreed under the Paris Agreement.

Fisheries and aquaculture contribute to food security and nutrition. However, it is estimated that the Union currently imports more than 60% of its supply of fishery products and is therefore highly dependent on third countries. An important challenge is **to encourage the consumption of fish protein** produced in the Union with high quality standards and available for consumers at affordable prices.

As regards the **maritime economy**, the Commission proposes to strengthen its support compared to the 2014-2020 period. This is a high-potential economic sector whose worldwide output is estimated at €1.3 trillion today and could more than double by 2030. The maritime fund will enable investment in new maritime markets, technologies and services such as ocean energy and marine biotechnology.

**Coastal communities** will receive more and broader support to set up local partnerships and technology transfers in all blue economy sectors, including aquaculture and coastal tourism.

The new proposal for the EMFAF regulation is therefore in line with the delivery of the key CFP objectives, notably fishing at sustainable levels in all sea basins by 2020 and beyond, enabling conditions to facilitate innovation and market development (including the development of local economies in coastal communities) and responding to emerging issues. This is reflected in the following four priorities (instead of six in the 2014-2020 programming period), namely:

**Priority 1:** Fostering sustainable fisheries and the restoration and conservation of aquatic biological resources;

**Priority 2:** Fostering sustainable aquaculture activities, and processing and marketing of fisheries and aquaculture products, thus contributing to food security in the Union;

**Priority 3:** Enabling a sustainable Blue Economy in coastal, island and inland areas, and fostering the development of fishing and aquaculture communities;

**Priority 4:** Strengthening international ocean governance and enabling seas and oceans to be safe, secure, clean and sustainably managed.

The following table presents briefly the specific objectives under each EMFAF priority and their correspondence with the Cohesion policy 2021-2027 objectives.

<p><b>Policy objective</b></p> <p><b>Article 4 of Regulation (EU) [Regulation laying down Common Provisions]</b></p>	<p><b>EMFAF priority</b></p>	<p><b>EMFAF specific objectives</b></p>
<p><u>Policy objective 2</u></p> <p>A greener, low carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management</p>	<p>(1)</p> <p>Fostering sustainable fisheries and the restoration and conservation of aquatic biological resources;</p>	<p>(a) Strengthening economically, socially and environmentally sustainable fishing activities;</p> <p>(b) Increasing energy efficiency and reducing CO2 emissions through the replacement or modernisation of engines of fishing vessels;</p> <p>(c) Promoting the adjustment of fishing capacity to fishing opportunities in cases of permanent cessation of fishing capacity and contributing to a fair standard of living in cases of temporary cessation of fishing activities;</p> <p>(d) Fostering efficient fisheries control and enforcement, including fighting against IUU fishing, as well as reliable data for knowledge-based decision-making;</p> <p>(e) Promoting a level-playing field for fishery and aquaculture products from the outermost regions; and</p> <p>(f) Contributing to the protection and restoration of aquatic biodiversity and ecosystems.</p>
<p><u>Policy objective 2</u></p> <p>A greener, low carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management</p>	<p>(2)</p> <p>Fostering sustainable aquaculture activities, and processing and marketing of fisheries and aquaculture products, thus contributing to food security in the Union</p>	<p>(a) promoting sustainable aquaculture activities, especially strengthening the competitiveness of aquaculture production while ensuring that the activities are environmentally sustainable in the long term;</p> <p>(b) promoting marketing, quality and value added of fisheries and aquaculture products, as well as processing of these products.</p>
<p><u>Policy objective 5</u></p> <p>A Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives</p>	<p>(3)</p> <p>Enabling a sustainable blue economy in coastal, island and inland areas, and fostering the development of fishing and aquaculture communities</p>	<p>Interventions that contribute to enabling a sustainable blue economy in coastal, island and inland areas, and to fostering the sustainable development of fishing and aquaculture communities.</p>
<p><u>Policy objective 2</u></p> <p>A greener, low carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management</p>	<p>(4)</p> <p>Strengthening international ocean governance and enabling seas and oceans to be safe, secure, clean and sustainably managed</p>	<p>Interventions that contribute to strengthening sustainable sea and ocean management through the promotion of marine knowledge, maritime surveillance or coast guard cooperation.</p>

As **fisheries control** is a key element for the successful implementation of the CFP, the proposal intends to support the implementation of a Union fisheries control system. In addition, investments in control assets could also be used for the purpose of maritime surveillance and cooperation on coastguard functions (including contributing to information sharing). The EMFAF also intends to support the collection, management and use of data for fisheries management and scientific purposes. The proposal reintroduces support for the **permanent cessation of fishing activities** in fleet segments whose capacity is higher than the fishing opportunities, which the current EMFF stopped after 31 December 2017.

The Commission proposes to allocate preferential treatment up to a 100% aid intensity rate to **small scale coastal fishing**, representing nearly 75% of all EU fishing vessels, with the aim of encouraging their sustainable fishing practices. Small-scale fisheries would also have exclusive access to other areas of support, such as the first acquisition of a second-hand vessel by young fishers (under 40 years of age) and the replacement or modernisation of a vessel's engine.

As the European Union currently imports more than 60% of its supply of fishery products and is therefore highly dependent on third countries, the Commission points out the important role that **aquaculture** has to play. The proposal therefore includes various areas of support in the sector, such for innovation, productive investments, compensatory measures which provide critical land and nature management services, and actions for animal health and welfare. The proposed EMFF also supports measures promoting the marketing, quality and value added of fishery and aquaculture products and investments in the processing of those products.

Whilst public investment in the sustainable **Blue Economy** should be mainstreamed throughout the Union budget, the EMFAF should specifically concentrate on enabling conditions for the development of the sustainable blue economy and on removing bottlenecks to facilitate investment and the development of new markets and technologies or services. The development of a sustainable blue economy strongly relies on **partnerships between local stakeholders** that contribute to the vitality of coastal and inland communities and economies. The EMFAF should provide tools to foster such partnerships. For that purpose, support for community-led local development (CLLD) should be available under shared management. That approach should boost economic diversification in a local context through the development of coastal and inland fisheries, aquaculture and a sustainable blue economy. **CLLD strategies** should ensure that local communities in fishing and aquaculture areas better exploit and benefit from the opportunities offered by the sustainable blue economy, capitalising on and strengthening environmental, cultural, social and human resources. Every local partnership should therefore reflect the main focus of its strategy by ensuring a balanced involvement and representation of all relevant stakeholders from the local sustainable blue economy.



The EMFAF shall support the implementation of the **maritime policy** and the development of a sustainable **Blue Economy** through: (a) the promotion of a sustainable, low carbon and climate resilient Blue Economy; (b) the promotion of an integrated governance and management of the maritime policy, including through maritime spatial planning, sea basin strategies and maritime regional cooperation; (c) the enhancement of the transfer and uptake of research, innovation and technology in the sustainable Blue Economy; (d) the improvement of maritime skills, ocean literacy and sharing of socio-economic and environmental data on the sustainable blue economy; (e) the development of project pipelines and innovative financing instruments.

Finally, the EMFAF shall support the implementation of the **international ocean governance policy** through: (a) voluntary contributions to international organisations active in the field of ocean governance; (b) voluntary cooperation with and coordination among international fora, organisations, bodies and institutions in the context of the United Nations Convention on the Law of the Sea, the 2030 Agenda for Sustainable Development and other relevant international agreements, arrangements and partnerships; (c) the implementation of ocean partnerships between the Union and relevant ocean actors; (d) the implementation of relevant international agreements, arrangements and instruments that aim to promote better ocean governance, as well as the development of actions, measures, tools and knowledge that enable safe, secure, clean and sustainably managed oceans; (e) the implementation of relevant international agreements, measures and tools to prevent, deter and eliminate illegal, unreported and unregulated fishing; (f) international cooperation on and development of ocean research and data.

According to the above analysis, the EMFAF in the 2021-2027 programming period remains a key funding framework for Blue Growth interventions, especially those related to the EUSAIR Pillar 1 topic of “Fisheries and Aquaculture”. Moreover, projects under the other Pillar topics could also be relevant to the Fund priorities (e.g. projects relevant to the Marine and Maritime Governance and Services under the 3rd priority, or projects of Blue Technologies under the other priorities of the Fund).

### **5.3.3. Other EU programmes and funding mechanisms**

#### **Horizon Europe**

**Horizon Europe** is the research and innovation framework programme running from 2021-2027. The new EU research and innovation programme will have a budget of around **€95.5 billion** for 2021-2027 (current prices). This represents a 30% increase vis-à-vis the current research and innovation programme, Horizon 2020 (comparing Horizon Europe against Horizon 2020 for EU27, in constant prices) and makes it the most ambitious research and innovation programme in the world.

Horizon Europe will have a strong degree of continuity with Horizon 2020, the current EU research and innovation programme (2014-2020): three pillars, excellence at the core, and maintaining the tested funding rules and procedures of Horizon 2020. But it has been improved to maximise its impact, its relevance to society and its potential for breakthrough innovation.

Horizon Europe will promote excellence and provide valuable support to top researchers and innovators to drive the systemic changes needed to ensure a green, healthy and resilient Europe. The programme will also support collaborative research relating to EU societal challenges and reinforce technological and industrial capacities through thematic clusters that address the full spectrum of global challenges.

A streamlined number of **European Partnerships** will encourage wide participation of partners from public and private sectors, covering critical areas such as energy, transport, biodiversity, health, food and circularity.

As knowledge has no territorial boundaries, Horizon Europe will also encourage participation, decrease the R&I gap, and strengthen the **European Research Area (ERA)** through a wide spectrum of measures to support lower R&I performing countries, to build up excellence centres, to improve their capacity and facilitate collaborative links. 3.3% of the programme's budget will be allocated to this which is a significant increase compared to Horizon 2020.

Horizon Europe will increase its impact by working closely together with other EU programmes and policies, such as InvestEU, Erasmus+, EU Cohesion Policy, Digital Europe, European Structural and Investment Funds, Connecting Europe Facility, and the Recovery and Resilience Facility, to promote faster dissemination at national and regional level, and uptake of research and innovation results. For the first time in the history of the framework programme, regions, on a voluntary basis, can transfer part of their regional funds to Horizon Europe to be used in research and innovation activities in their region.

Additionally, the programme will introduce new features such as the **European Innovation Council (EIC)** and **EU missions**. The **European missions** will focus on ambitious, time-bound and achievable goals to deliver on common European goods. They aim at achieving by 2030 three million lives saved from cancer diseases, 100 climate neutral cities, healthy oceans, seas and internal waters, healthy soils and food, and regions resilient to climate changes. Each mission will operate as a portfolio of actions – such as research projects, policy measures or even legislative initiatives - to achieve a measurable goal that could not be achieved through individual actions. The missions will contribute to the goals of the European Green Deal, Europe's Beating Cancer Plan as well as the Sustainable Development Goals. Five mission areas have been identified, each with a dedicated mission board and assembly, namely:

- Adaptation to climate change including societal transformation;
- Cancer;
- Climate-neutral and smart cities;
- **Healthy oceans, seas, coastal and inland waters;**
- Soil health and food.

As regards the mission area 4 “**Healthy oceans, seas, coastal and inland waters**”, which is closely related to the EUSAIR Pillar 1 “**Blue Growth**” and Pillar 3 “**Environmental Quality**”, it will be a powerful tool to raise awareness among citizens of the importance of healthy oceans, seas, coastal and inland waters, and help develop solutions on a range of issues. These include:

- Systemic solutions for the prevention, reduction, mitigation and removal of marine pollution, including plastics;
- Transition to a circular and blue economy;
- Adaption to and mitigation of pollution and climate change in the ocean;
- Sustainable use and management of ocean resources;
- Development of new materials including biodegradable plastic substitutes, new feed and food;
- Urban, coastal and maritime spatial planning;
- Ocean governance;
- Ocean economics applied to maritime activities.

At the end of June 2020, the mission board produced an interim report proposing concrete targets and a timeline for a possible mission. The proposed “**Mission Starfish 2030: Restore our Ocean and Waters**” targets by 2030: cleaning marine and fresh waters, restoring degraded ecosystems and habitats, decarbonising the Blue Economy in order to sustainably harness the essential goods and services they provide.

The first Horizon Europe Strategic Plan (2021-2024) is expected to be adopted in February 2021. The Strategic Plan will contain:

- Key strategic orientations for research and innovation support and their targeted impact;
- European partnerships (co-funded and co-programmed);

- Missions;
- Areas of international cooperation;
- Specific issues like social sciences and humanities, gender, and the role of key enabling technologies.

### **Funding from the private sector**

In addition to public funding, there is a need for financing Blue Growth interventions from the private sector where large-scale investments are needed in capital-intensive sectors such as ocean energy, coastal protection and infrastructure works in seaports. The European Investment Bank (EIB) has been heavily involved in financing Blue Economy sectors (e.g. in rehabilitating seaport infrastructure and developing the off-shore wind industry), more recently via the European fund for strategic investments (EFSI). However, the Blue Economy still has low levels of investment due to the high risks and longer-term paybacks for private investors.

### **5.3.4. The Economic and Investment Plan of the Western Balkans**

The Western Balkans are an integral part of Europe and a geostrategic priority for the European Union. With a population of nearly 18 million people, the region is an important market for the EU and a transit area for European and international goods, with a skilled workforce for companies ready to invest.

The Commission's proposal for an Economic and Investment Plan (EIP) for the Western Balkans<sup>48</sup> sets out a **substantial investment package** for the region. It is built on the foundations of a performance-based and reform-oriented proposal for an Instrument for Pre-accession Assistance III (IPA III) and reinforced instruments to foster public and private-sector investment.

The **objectives** of this Economic and Investment Plan are as follows:

- Spur the long-term recovery and accelerate green and digital transition;
- Foster regional cooperation and convergence with the EU;
- Unleash the untapped economic potential of the region and the significant scope for increased intra-regional economic cooperation and trade;
- Reinforce the key role the Western Balkans have to play in the global value chains that supply the EU;
- Key productive investments and infrastructure;
- Sustainability of investments: reforms in rule of law and fight against corruption.

---

<sup>48</sup> COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. An Economic and Investment Plan for the Western Balkans, (COM (2020) 641 final, Brussels, 6.10.2020.

Subject to the adoption of the next Multi-annual Financial Framework and the related legal bases, the Commission proposes to mobilise up to **EUR 9 billion of IPA III funding for the period 2021-2027** to support economic convergence with the EU primarily through investments and support to competitiveness and inclusive growth, sustainable connectivity, and the twin green and digital transition. The Commission proposes that the large majority of this support would be directed towards key productive investments and sustainable infrastructure in the Western Balkans. The investment capacity of the region in addition should be boosted by the mobilisation of a new Western Balkans Guarantee facility, with the **ambition to potentially raise investments of up to EUR 20 billion**. The investment package will be a key driver for facilitating increased public and private investment in the region by the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and other International Financial Institutions (IFIs), Development Finance Institutions of EU Member States (DFIs), the Western Balkans governments and private investors, including foreign direct investment, as well as integrating markets.

Based on the approach of the European Green Deal, a **Staff Working Document setting out a Green Agenda for the Western Balkans**<sup>49</sup> sets out relevant actions and recommendations, including alignment with the EU standards and the *acquis*. The Green Agenda is embedded in the EIP and was endorsed during the Sofia Summit at 10 November 2020.

The Economic and Investment Plan sets out **six key areas for economic development** under which ten investment flagship initiatives have been identified. In particular:

**1. Sustainable Transport**

- FLAGSHIP 1 – Connecting East to West
- FLAGSHIP 2 – Connecting North to South
- FLAGSHIP 3 – Connecting the coastal region

**2. Clean Energy (Green Agenda)**

- FLAGSHIP 4 – Renewable energy
- ✓ Increased use of RE sources will be supported, in line with the region's potential and national preferences.
  
- FLAGSHIP 5 – Transition from coal
- ✓ Future-proof gas pipelines supportive of the low carbon transition and transit of decarbonised gas and hydrogen

---

<sup>49</sup> COMMISSION STAFF WORKING DOCUMENT Guidelines for the Implementation of the Green Agenda for the Western Balkans *Accompanying* the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions An Economic and Investment Plan for the Western Balkans (COM (2020) 641 final, Brussels, 6.10.2020).

- ✓ Performant electricity transmission lines and smart grids for increased use of RE sources in line with the region's potential

- FLAGSHIP 6 – Renovation wave

- ✓ Expansion of the “EU renovation wave” to the Western Balkans
- ✓ Decarbonisation of public and private building stock, with a strong emphasis on digitalisation and taking into account energy poverty
- ✓ Triple the current renovation rate and energy savings in existing buildings
- ✓ Nearly-zero energy and emission standard in new buildings

### **3. Environment (Green Agenda)<sup>50</sup>**

- FLAGSHIP 7 – Waste and Waste water management

- ✓ Sustainable and reliable ways of managing water supply, waste water and waste disposal are crucial for the protection of the environment and of the health of citizens and can have positive impacts on tourism in the region. This is essential for the green perspectives of the region, and safeguarding the health and welfare of its people.

### **4. Digital Future**

- FLAGSHIP 8 – Digital infrastructure
- ✓ Development and roll-out of national broadband infrastructure
- ✓ Setting up secure, energy-efficient and trustworthy data centres, edge and cloud infrastructures

### **5. Private Sector**

- FLAGSHIP 9 – Investing in the competitiveness of the private sector
- ✓ The development of a robust, innovative and competitive private sector is essential for the socio-economic development of the Western Balkans and its regional integration. This requires, in particular, increased investments in SMEs and their capacity to innovate, scale-up and grow.

### **6. Human Capital**

- FLAGSHIP 10 – Youth Guarantee
- ✓ The Youth Guarantee is an activation scheme to ensure that all young people receive a good quality offer of employment, continued education, apprenticeship or traineeship within a period of four months of becoming unemployed or leaving formal education. The Youth Guarantee flagship should be implemented by Western Balkan governments in line with the EU Youth Guarantee.

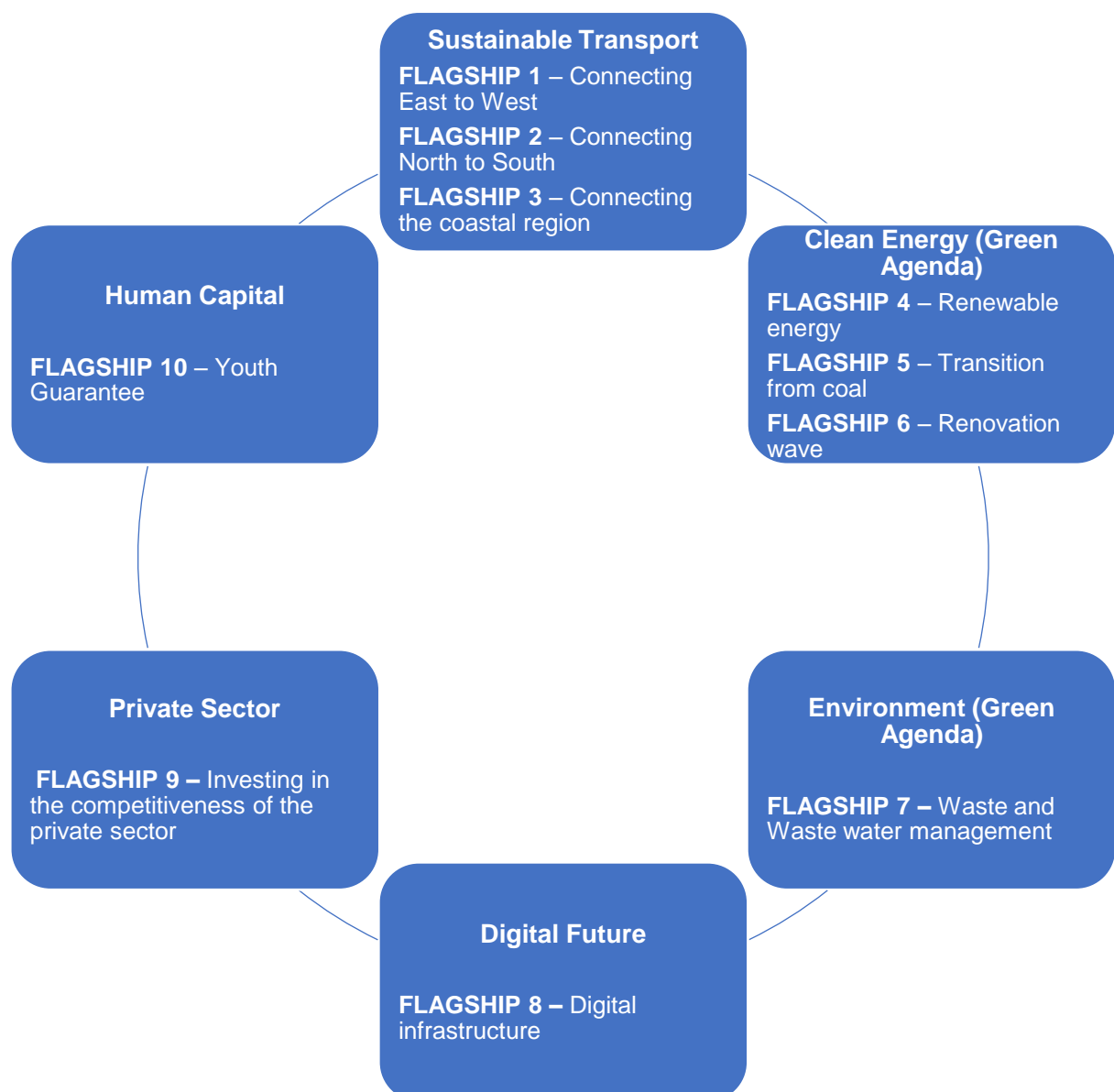
---

<sup>50</sup> The Green Agenda for the Western Balkans is informed by the five core areas of the Green Deal: (1) climate action, including decarbonisation, energy and mobility, (2) circular economy, addressing in particular waste, recycling, sustainable production and efficient use of resources, (3) biodiversity, aiming to protect and restore the natural wealth of the region, (4) fighting pollution of air, water and soil and (5) sustainable food systems and rural areas. Digitalisation will be a key enabler for the above five pillars in line with the concept of the dual green and digital transition.

**The EIP also foresees the development of a Common Regional Market.**

- Development of a Common Regional Market to facilitate the integration of the region more closely with the EU
- Integration both within the region and with the EU, and an important milestone for preparation for the EU accession
- A stepping stone to integrate the region with the EU Single Market.

**The Economic and Investment Plan of the Western Balkans: Key Areas for Economic Development**



## **Links between EUSAIR and EIP**

EUSAIR is a unique cooperation tool for implementing the Commission's priorities, core EU values and EU policies beyond EU borders. EUSAIR is well placed to foster cooperation between the Member States and the Western Balkans.

The EU Strategy for the Adriatic-Ionian Region (EUSAIR), where the Western Balkans countries play an important role, is a functioning policy and cooperation framework that can significantly foster implementation of regionally agreed processes on the ground. Macro-regional strategies, in general, act as a bridge between EU and local policymaking. They can also be a vehicle that is ready to facilitate and deliver implementation of EU initiatives in the Western Balkans region.

As the MRS do not have their own resources, the start of the programming period 2021 – 2027 presents the best opportunity for all macro-regional strategies to bridge the gap between their needs and funding opportunities. The EUSAIR has successfully determined its “Flagship” topics that are of strategic importance to the respective macro-region and hence, to Western Balkan countries, where IPA III will be the main funding source. Macro-regionally approved flagships are essentially agreed actions ready to be delivered through an existing cooperation framework.

The key question is to explore how do the agreed priorities (to be embedded) of EUSAIR match with those of the Economic and Investment Plan of Western Balkans and its Flagships. This could in turn facilitate a quick start of macro-regional agreed priorities implementation and speed up the economic recovery of the Western Balkans.

The following Table illustrates the links between the EIP Flagship initiatives and strategic Flagship topics of EUSAIR at Pillar 1 “Blue Growth” level to be embedded in the Cohesion Policy and IPA programming documents.



<b>LINKS between EUSAIR 2021-2027 FLAGSHIPS and EIP</b>			
<b>EUSAIR Pillar 1: Blow Growth flagships</b>			
<b>Flagships from the Economic and Investment Plan of the Western Balkans</b>	<b>Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy</b>	<b>Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research &amp; development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits</b>	<b>Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and Blue Growth services</b>
1.Connecting East to West			
2.Connecting North to South			
3.Connecting the Coastal Region			
4.Renewable Energy	<b>Strong link</b>		<b>Some links</b>
5.Transition from Coal			
6.Renovation Wave			
7.Waste and Waste Water Management			<b>Some links</b>
8.Digital Infrastructure	<b>Strong link</b>		
9.Investing in the Competitiveness of the Private Sector	<b>Strong link</b>	<b>Strong link</b>	
10.Youth Guarantee			

## **5.4. EUSAIR BLUE GROWTH FLAGSHIPS 2021-2027**

In the 2014-2020 period the EUSAIR Thematic Steering Groups following the guidelines of the EUSAIR Governing Board elaborated the new Pillar priorities for the programming period 2021-2027. The 12<sup>th</sup> EUSAIR Governing Board Meeting (June 2020) approved the EUSAIR priorities (Flagships) for the next programming period, as well as an indicative list of proposed actions and projects that could be implemented under each Flagship. The approved Flagships and indicative actions for Pillar 1 “Blue Growth” are the following:

**F1 - Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy**

### Proposed actions/projects:

Encouragement & creation of clustering, especially of quadruple helix; Research on blue technologies & prioritisation of its adoption by SMEs in the macro-region; Promotion of blue skills; Reinforcement of networking, knowledge sharing & creation of databanks; Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries; Allowing development of novel eco-friendly end products that serve circular economy; Development of solutions to decarbonize fishing fleets; One-stop-shops’ operation for SMEs support.

**F2 - Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits**

### Proposed actions/projects:

- *Fisheries:* Development of a strategy for small scale fisheries; Scientific cooperation on fisheries management; EU compliance and common standards and practices; Developing skills; Creation of a network for monitoring and predicting the distribution of alien species in the Adriatic-Ionian region and potential ways of exploitation; Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and in-situ monitoring of their efficiency.
- *Aquaculture:* Administration: includes legal framework, licensing procedures and monitoring of the activity. Data is available from previous projects together with monitoring tools that are under development (e.g. TAPAS project); Technology: Methodological and technical issues related to farming nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital.; Marketing (including Trade): refers to quality of the final product, promotion of the industry,

market research etc, including the promotion of initiatives on marketing standards and healthy nutritional habits. Trade: refers to facilitation of trade of fisheries and aquaculture products including seafood processing products, traceability, certification, harmonization of legislation.

**F3 - Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and Blue Growth services**

Proposed actions/projects:

- *Research platforms and Trans-regional* cooperation between community-led local development (CLLD) strategies for actions: to combat marine litter pollution; development of fishtourism and ichthyotourism; Creation of start-ups and local employment and promotion of partnership working.
- *Governance of maritime space for a sustainable and transparent use of maritime and marine resources:* supporting the implementation of the new Directive on Maritime Spatial Planning; adopting clearer legal frameworks for development of Allocated Zones for Aquaculture (AZAs), marine protected areas (MPAs), exploiting deep-sea water and marine mineral resources.
- *Maritime professional skills:* improve the levels of skills and expertise for the working manpower in the maritime sector.

## **5.5. KEY POLICY RECOMMENDATIONS FOR THE PROGRAMMING PERIOD 2021-2027**

This section presents the key policy recommendations for the programming period 2021-2027 for each Pillar 1 “Blue Growth” topic. The text below incorporates the Pillar 1 M&E Consultant’s proposal regarding the priorities of the EUSAIR that could be incorporated in the programme documents of the new period, while the Ideal EUSAIR study allows a further specification of that proposal at the level of indicative projects (or groups of projects) that could be implemented under the proposed actions in which the EUSAIR Pillar 1 Flagships were analyzed and approved by the Governing Board.

### **5.5.1. Blue Technologies**

In the new programming period 2021-2027 boosting Blue Technologies in the Adriatic and Ionian Region could be achieved through<sup>51</sup>:

- Development of macro-regional research

---

<sup>51</sup> INTERREG ADRION, EUSAIR – Pillar 1: Blue Growth  
MFF 2021-2027, *Flagships*

- Development and innovation platforms in marine and blue biotechnologies
- Establishment of macro-regional clusters in promising sectors such as green shipbuilding and new materials
- Mobility of researchers between institutes, universities and companies.

The strategic goals served are:

- ✓ Development of skilled human capital on Blue Technologies
- ✓ Creation of new jobs in the field of Blue Growth
- ✓ Know how transfer between EU and IPA countries
- ✓ Cooperation between research and public and private sectors, as well as users, to develop innovative products and services and technology transfer
- ✓ Compliance/adaptation of non-EU countries with EU Acquis
- ✓ Remove barriers to trade and investments

Interventions related to the strengthening of quadruple helix ties in the fields of marine technologies and blue bio-technologies could be financed aiming at:

- Advancing innovation, business development and business adaptation in blue bio-economy;
- Stronger RDI and cooperation among SMEs and between SMEs, large enterprises and research centres operating in the Adriatic-Ionian macro-region
- Facilitating the “brain circulation” between universities, institutes and companies as a precondition for the development of macro-regional cooperation in the field of Blue Technologies; increasing networking between researchers, SMEs and clusters; increasing joint research papers and number of researchers exchanged within the macro-region
- Strengthening networking and creating macro-regional clusters especially of quadruple helix, while encouraging the internationalization of small and medium-sized enterprises (SMEs).
- Easier access to finance and promotion of the creation of start-ups

In order to boost Blue Technologies in the macro-region, research and development (R&D) and innovation platforms in areas such as green sea mobility, deep sea resources (including the development of unmanned marine vehicles) biosecurity and blue bio-technologies must be developed at national or regional level. Priorities could also be adopted for easier access to finance and promotion of the creation of start-ups and spin offs for the development and testing of prototypes or ideas as well as for the exploitation of scientific results. Encouragement for national, regional and macro-regional cluster development and enhancement of researchers’ mobility in the macro-region could also be adopted in the national or regional priorities.

The prioritization and adoption of Blue Technologies by SMEs, the development of skilled human capital and knowledge transfer could be promoted as key factors for innovation and sustainable Blue Growth.

In the programming period 2021-2027 eligibility and possible funding sources for the Blue Technologies sector are as follows;

- INTERREG
- EMFAF
- Coordination with national and regional RDI programmes of ERASMUS+ and RIS3
- ERDF
- COSME
- Horizon Europe

The following Table presents indicative projects or groups of projects, that could be implemented in the programming period 2021-2027, relevant to the first Flagship of the EUSAIR Pillar 1 “Blue Growth” (F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy).

<b>Flagship F1: Proposed actions</b>	<b>Indicative Projects/Groups of Projects</b>
One-stop-shops' operation for SMEs support	<ul style="list-style-type: none"> <li>• Adriatic-Ionian Blue financing: macro-regional projects exploring innovative financial and incentives instruments to facilitate the access to seed and venture capital, such as crowdfunding, blending mechanisms, etc. This could also be linked to instruments of the EIB and EIF or other international funding bodies.</li> </ul>
Promotion of blue skills	<ul style="list-style-type: none"> <li>• Development of educational and training programmes (e.g. university and/or professional) to support the development of skilled human capital on Blue Technologies.</li> <li>• Establishment of a Network of Blue Career Centres in the EUSAIR countries.</li> </ul>
Encouragement & creation of clustering, especially of quadruple helix.	<ul style="list-style-type: none"> <li>• Development of transnational clusters in the Adriatic-Ionian region on promising sectors, such as marine renewable energies, green shipbuilding and new materials, enhancing the exploitation of emerging technologies and fostering linkages and collaborations among all the stakeholders of the quadruple helix.</li> </ul>
Research on Blue Technologies; & prioritization of its adoption by SMEs in the AI macro-region	<ul style="list-style-type: none"> <li>• Fostering diffusion of marine renewable energy technologies through the development, demonstration and validation of blue energy pilot prototypes in the Adriatic-Ionian region.</li> <li>• Research platform for marine robotics, e.g. unmanned marine underwater vehicles for blue biotech and/or marine mineral resources exploration activities.</li> </ul>

	<ul style="list-style-type: none"> <li>• Research platforms for green shipbuilding, boat building and new materials.</li> <li>• Research on blue technologies and its usage by SMEs to remediate the Blue Environment (sea, estuaries etc.) in order to be active and alive.</li> </ul>
Allowing development of novel eco-friendly end products that serve circular economy	<ul style="list-style-type: none"> <li>• Research platforms on the exploitation of micro-organisms growing in the macro-region for the production of innovative products through the valorization of residual bioresources streams.</li> <li>• Creation of circular economy Action Plans for the territorial deployment of innovative solutions for creating circular economies through the valorisation of residual bioresource streams.</li> <li>• Seaweed cultivation in integrated multi-trophic aquaculture: elucidation of the seaweed effects on fish metabolism and welfare, proliferation of seaweed culture under control conditions and use of seaweeds as aquafeed additives. Potential for IMTA in EUSAIR regions.</li> <li>• Use of aquaculture wastewater for phytoplankton culture: appropriate plankton species in EUSAIR regions and culture practices for improving biomass and quality, probably in two steps.</li> <li>• Use of phytoplankton as aquafeed additive or for the production of bioactive compounds.</li> </ul>
Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries	<ul style="list-style-type: none"> <li>• Innovative biotech products from the macro-region's sea biological resources in various socially relevant fields, such as well-being (medicine, cosmetics), food and feed, environment (novel materials-e.g. biopolymers, bioremediation).</li> </ul>
Development of solutions to decarbonize (fishing) fleets	<ul style="list-style-type: none"> <li>• Development of solutions to decarbonize (fishing) fleets (e.g. new materials, shore-based supply of electricity for vessels in ports and innovative propulsion modes and fuels, etc. (switch from diesel to Liquid Natural Gas and electric vessels)).</li> </ul>

## 5.5.2. Fisheries and Aquaculture

In the programming period 2021-2027 Fisheries and Aquaculture must be aligned with the Farm to Fork Strategy for a fair, healthy and environmentally friendly food chain system, capable of reducing the environmental and climate footprint of the EU food system and enhancing resilience, protect food security against climate change and biodiversity loss and to be a pioneer in a global transition from competitive farm to fork, taking advantage of the new opportunities of the European Green Deal, defining how to make Europe the first climate-neutral continent by 2050.

Policy choices in **the field of Fisheries** must support the achievement of the objectives of the Common Fisheries Policy through:

- Sustainable development of fisheries
- Promotion of eco-innovation

- Improvement of knowledge, monitoring and surveillance
- Harmonization of standards across the macro-region
- Improvement of skills and capacity to comply with EU rules and standards
- Increase of the added value of local seafood value chains
- Development of market intelligence and transparent marketing
- Diversification of activities for the fishermen
- Identification of existing technologies and their potential for use in the fishing sector (gear selectivity).

**Possible priorities** to be set at national/regional level:

- ✓ Sustainable use of resources and integrated control of fisheries
- ✓ Building capacity to comply with the EU acquis on fisheries, which is essential for long-term sustainability
- ✓ Cooperation on scientific issues and fisheries management. Scientific cooperation between the macro-region's countries could be promoted in order to link scientific research to the needs of fisheries and aquaculture.

**Aquaculture activities** must be environmentally sustainable and managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, through:

- Support the achievement of the objectives of the Common Fisheries Policy
- Foster the implementation of the Union's maritime policy and to strengthen international ocean governance
- Contribute to food security through competitive and sustainable aquaculture and markets.
- Support the promotion and the sustainable development of aquaculture
- Support the marketing of fishery and aquaculture products
- Support the creation of producer organisations, the implementation of production and marketing plans, the promotion of new market outlets and the development and dissemination of market intelligence.

**Possible priorities** to be set at national/regional level:

- ✓ The development of a strong, high-quality aquaculture sector that is economically sustainable and environmentally-friendly, contributes to job creation and to supply of healthy food products, respecting the EU and international rules.

- ✓ Enabling clear harmonised policy with respect to access to space and licensing; addressing limited access to seed capital or loans for innovation and time-consuming administrative procedures and red tape.

The European Maritime Fisheries and Aquaculture Fund (EMFAF) remains the main funding mechanism for projects relevant to the second topic of the EUSAIR Pillar 1 “Blue Growth”. Through the Fund, interventions that contribute to achieve the objectives of the Strategy can be supported, by promoting sustainability, diversification and competitiveness in the areas of fisheries and aquaculture through education, research and development, administrative, technological and promotional activities, including the promotion of marketing standard initiatives and healthy dietary habits to promote sustainable fishing and conservation of marine biological resources, and sustainable aquaculture and markets.

Proposals for increased support for international ocean governance and stronger synergies with other EU policies affecting the oceans, seas, islands, coastal and outermost regions and maritime sectors (such as transport, research and technology, energy and tourism) could also be adopted.

The EMFAF is also expected to enable the development of a sustainable Blue Economy and to promote the creation of prosperous coastal communities and to support the EU's climate goals, including the Paris Agreement.

Fisheries and Aquaculture relevant projects could also be funded under the INTERREG programmes 2021-2027.

The following Table presents specific policy recommendations regarding indicative projects or groups of projects, that could be implemented in the programming period 2021-2027, relevant to the second Flagship of the EUSAIR Pillar 1 “Blue Growth” (F2: Promoting Sustainability, Diversification and Competitiveness in the Fisheries and Aquaculture sectors through education, research and development, administrative technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits). The projects are presented separately for the sectors of Fisheries and Aquaculture.

## **A. Fisheries**

In the new programming period, the sector of Fisheries has to deal with the macro-regional challenge of better cooperation across the Adriatic-Ionian Sea basin, which should trigger a virtuous process of increasing the competitiveness of the coastal communities. Strategic goals to be served are:

- Creation of new jobs, the harmonization of standards as well as the compliance of non-EU countries with EU Acquis are of strategic importance.
- Combining fisheries with tourism activities (EUSAIR Pillar 4) should be exploited and further developed.



Overall, the projects proposed aim at strengthening Fisheries in the macro-region through:

- Better management and sustainable exploitation of fish stocks.
- Improvement of data collection and fish stock assessment.
- Improved fisheries management & harmonization with EU regulations & international organisations.
- Compliance & implementation of measures to combat illegal, unreported, unregulated fisheries and elimination of destructive fishing practices.
- Utilization of Unwanted and Unavoidable catches and discards.
- Plans to improve professional skills of fishermen.

<b>Flagship F2 (Fisheries): Proposed actions</b>	<b>Indicative Projects/Groups of Projects</b>
<p>Development of a strategy for small scale fisheries (SSF);</p> <p>Scientific cooperation on fisheries management;</p>	<ul style="list-style-type: none"> <li>• Establishment of transnational innovation networks in order to promote strategies for innovative transnational priority actions on fisheries, supporting regional research-driven clusters.</li> <li>• SSF research and policy networking to address a number of challenges</li> <li>• Research into increasing the competitiveness of fisheries, including SSF</li> <li>• Conflict resolution and fostering synergies with fisheries (including SSF) and the creation of MPAs</li> <li>• Development of Blue Growth strategies for specific regions and/or sea basins</li> <li>• Improving knowledge of fisheries (including SSF) and developing useful indicators for management purposes;</li> <li>• Strengthening SSF stakeholder representation and engagement</li> <li>• Using the bottom-up approach to assist fisheries and SMEs in job creation/maintenance, adding value to fishery products, innovative solutions, new business opportunities and adopting smart, sustainable solutions</li> <li>• Sustainable fisheries management (Ecosystem-Based Management)</li> <li>• Reduce discard and bycatch (0 discard target)</li> <li>• Reduce ghost fishing using novel technologies</li> <li>• Reduce competition between marine mammals and fishers</li> <li>• Application of environmentally acceptable technologies and protection of damages from predators</li> <li>• The effects of anthropogenic pressures and climate change in the nutritional and commercial value of two small pelagic fish species of importance to ADRIAN region fisheries: Biodiversity and energy flow from the ecosystem to the final product</li> <li>• Balancing healthy environment and current fisheries practices in the EUSAIR region</li> </ul>
<p>EU compliance and common standards and practices</p>	<ul style="list-style-type: none"> <li>• Development of methodologies and quality labels to increase the value added of Adriatic Ionian macro-region produced fish</li> <li>• Improved access to market</li> <li>• Sustainable packaging of fish and seafood based on marine bioresources</li> <li>• Activities for greener, low carbon fisheries a sector by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management</li> </ul>
<p>Developing skills; Plans to improve</p>	<ul style="list-style-type: none"> <li>• Establishment of a network of Blue Career Centres in the EUSAIR countries aiming to attract young people and experienced workers and fill existing skills' gaps by supporting activities that will increase</li> </ul>

professional skills of fishermen;	<ul style="list-style-type: none"> <li>• employability in key Blue sectors of the Adriatic – Ionian region</li> <li>• Establishment of fishermen vocational training networks</li> </ul>
Creation of a network for monitoring and predicting the distribution of alien species in the Adriatic-Ionian region and potential ways of exploitation	<ul style="list-style-type: none"> <li>• Technologies for monitoring and predicting the distribution of alien species in the Adriatic-Ionian region</li> <li>• Potential ways of exploitation of alien species</li> <li>• Efforts to market alien species</li> </ul>
Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and <i>in-situ</i> monitoring of their efficiency.	<ul style="list-style-type: none"> <li>• Novel artificial reefs installation and monitoring tools</li> <li>• Restoration and bioremediation actions</li> </ul>
Utilization of Unwanted and Unavoidable catches and discards for production of high added value products	<ul style="list-style-type: none"> <li>• Utilization of Unwanted and Unavoidable catches and discards for production of high added value products</li> <li>• Exploitation of discards and other animal by-products from seafood processing in the EUSAIR region</li> </ul>
Actions to improve traceability, certification, harmonization of legislation	<ul style="list-style-type: none"> <li>• Evaluating freshness and authenticity with real-time non-destructive methods to increase the value added of Adriatic Ionian macro-region produced fish</li> <li>• Development of a quality assurance standard for fish traded in EUSAIR fish landing sites and seafood markets</li> <li>• Actions to improve traceability, certification, harmonization of legislation with EU acquis</li> <li>• Evaluating freshness and authenticity with real-time non-destructive methods to increase the value added of Adriatic Ionian macro-region produced fish</li> </ul>
Development of fish tourism and ichthyotourism (diversification activities)	<ul style="list-style-type: none"> <li>• Fishing tourism and ichthyotourism diversification activities in the Adriatic-Ionian Region;</li> <li>• Ecosystem services, including targeting actions to remove plastics and prevent ghost gears;</li> <li>• Collaborating platforms of fisheries organisations for fish tourism and the key role of the organization of fishermen as cooperatives;</li> </ul>
<b>Trade:</b> refers to facilitation of trade of fisheries products including seafood processing products, traceability, certification, harmonization of legislation.	<ul style="list-style-type: none"> <li>• Actions on Marketing (including Trade) (campaigns, messages on TV, radio etc., participation in International fairs etc.);</li> <li>• Actions to facilitate trade of fisheries products including seafood processing products;</li> <li>• Actions to improve harmonization of legislation in the EUSAIR countries;</li> </ul>

## **B. Aquaculture**

In the programming period 2021-2027, the better cooperation across the Adriatic-Ionian Sea basin, in the sector of Aquaculture should trigger a virtuous process of increasing the competitiveness of the coastal communities.

The strategic goal for Aquaculture is the creation of new jobs, while the harmonization of standards as well as the compliance of non-EU countries with EU Acquis are of strategic importance.

Overall, the (indicative) projects proposed aim at strengthening the aquaculture sector in the macro-region through:

- Improvement of Administration (including data collection), Technology, Marketing and Trade.
- Compliance & implementation of measures for sustainable and resource efficient aquaculture with improved environmental footprint.
- Utilization of Unwanted and Unavoidable catches and discards.
- Plans to improve professional skills of employees in the aquaculture sector.

<b>Flagship F2 (Aquaculture): Proposed actions</b>	<b>Indicative Projects/Groups of Projects</b>
<p><b>Administration:</b> includes legal framework, licensing procedures and monitoring of the activity.;</p>	<ul style="list-style-type: none"> <li>• Improve legal framework of aquaculture operations and licensing procedures (EU MS only)</li> <li>• Harmonise legal framework of aquaculture operations and licensing procedures (non-EU MS only)</li> <li>• Harmonise the environmental monitoring of the activity according to the EU legislation (non-EU MS only)</li> <li>• Actions to close the gap between EU and IPA ADRION Countries by development of actions for raising competencies/skills of the stakeholders specially focusing on the involvement of partners from candidate and potential candidate countries including education and training concepts for the uptake and diffusion of innovation and circular knowledge management promoting the mobility of staff, Researchers and PhD candidates in the ADRION region</li> <li>• Promoting innovative and smart economic transformation by establishing support mechanisms for spreading previous project outcomes and results across the EUSAIR</li> <li>• Simplification of administrative procedures and ensuring sustainable development and growth through coordinated spatial planning</li> </ul>
<p><b>Technology:</b> Methodological and technical issues related to farming. Nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital.</p>	<ul style="list-style-type: none"> <li>• Improve the environmental monitoring of the aquaculture activity</li> <li>• Resolve methodological and technical issues related to farming (RAS, offshore aquaculture, processing etc.)</li> <li>• Resolve nutrition issues related to farming</li> <li>• Resolve ichthyopathology and treatment issues related to farming</li> <li>• Rapid detection and prevention of disease outbreaks in fish farms</li> <li>• Research on new species</li> <li>• Actions to improve skills for the aquaculture sector</li> <li>• eDNA tools for sustainable management</li> <li>• Introduction of a centralized database of genetic and other biological data on fish stocks and regular genetic monitoring of all certified fish farms</li> <li>• Activities for greener, low carbon fisheries and aquaculture sector by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management</li> <li>• Creation of functional networks of joint distributed research facilities for fisheries and aquaculture</li> <li>• Development of integrated environmental monitoring and improved modelling for aquaculture to enhance transnational capacity for assessment and tackling marine environmental vulnerability and safeguarding ecosystem services through</li> </ul>

	<p>Integrated Coastal Zone Management principles</p> <ul style="list-style-type: none"> <li>• Development of transnational “quadruple helix” clusters in common interest fields addressing all stages of the innovation cycle, including idea generation, conception and prototyping, transfer, patenting, commercialization, etc;</li> <li>• The development of a novel IoT environmental monitoring system for use in Allocated Zones of Aquaculture development. The system will be coupled with advanced modelling systems able to make a prognosis of harmful algal blooms, dispersion of the farm effluents and will allow the development of a flexible decision support system for the more efficient and dynamic management of the AZA</li> <li>• Green technologies that can be applied to aquaculture</li> <li>• Data collection and environmental monitoring for the sustainability of the sector (non-EU Countries)</li> </ul>
<p><b>Marketing (including Trade):</b> refers to quality of the final product, promotion of the industry, market research etc, including the promotion of initiatives on marketing standards and healthy nutritional habits.</p>	<ul style="list-style-type: none"> <li>• Actions to improve quality of the final product</li> <li>• Actions to promote the industry and improve of the image of aquaculture products</li> <li>• Actions for market research, marketing standards and healthy nutritional habits</li> <li>• Actions to improve traceability, certification, harmonization of legislation</li> <li>• Diversification of production and the introduction of new species into farming, increasing the competitiveness, certification, branding</li> <li>• Improve traceability and monitoring of the product quality, awareness of consumers and collaboration with them;</li> <li>• Initiatives in order to enhance consumption of fishery and aquaculture products</li> </ul>
<p><b>Trade:</b> refers to facilitation of trade of aquaculture products including seafood processing products, traceability, certification, harmonization of legislation.</p>	<ul style="list-style-type: none"> <li>• Actions on Marketing (including Trade) (campaigns, messages on TV, radio etc, participation in International fairs etc);</li> <li>• Actions to facilitate trade of aquaculture products including seafood processing products</li> <li>• Actions to improve harmonization of legislation in the EUSAIR countries</li> </ul>

### 5.5.3. Maritime and Marine Governance and Services

Regarding the topic of Maritime and Marine Governance and Services, policy choices should be directed towards training and efficient coordination of planning activities needed for better Maritime and Marine Governance and Services, through:

- Data sharing, joint planning and coordinated management of existing resources
- Enhancing capacity building to equip people with new skills (including soft skills) that are needed for better marine and maritime governance and services as well as for securing quality jobs and improve life chances

The Adriatic and Ionian region needs to make better use of the skills that are available, equip people with new skills (including soft skills) that are needed:

- Enabling the growth of a sustainable Blue Economy and fostering prosperous coastal communities
- Improved governance of maritime space

- Improved skills and career development in Blue Economy and strengthening of networks of academics, training organisations and professional organisations of maritime sectors in the macro-region.

Competition for maritime space – for renewable energy equipment, aquaculture and other uses – has highlighted the need to manage waters more coherently. The strategic goals served are:

- ✓ Improved maritime and marine governance and services
- ✓ Creation of new jobs
- ✓ Harmonization of standards
- ✓ Overcome of barriers and obstacles
- ✓ Compliance/adaptation of non-EU countries with EU Acquis.

**Relevant priorities** to be set in the national EMFF operational programmes and CLLD strategies in fisheries dependent areas (EMFF, ERDF and ESF) should target to:

- ✓ Reduce conflicts between sectors and create synergies between different activities
- ✓ Encourage investment – by creating predictability, transparency and clearer rules
- ✓ Increase cross-border cooperation – between EU and non-EU countries for MSP
- ✓ Protect the environment – through early identification of impact and opportunities for multiple use of space.

The EUSAIR priorities in the programming period 2021-2027 could also be served through:

- The development of appropriate and operational transnational cooperation networks to improve the sustainable management of coastal and insular areas;
- The creation of databases for effective policy-making and the implementation of the Maritime Spatial Planning Directive) as well as the Maritime Strategy Framework Directive;
- The creation of programmes for the cultivation of the necessary skills;
- The improvement of career prospects in the fields of the Blue Economy, with particular emphasis on the maritime profession.

Interventions could be adopted regarding the improvement of the management capacity of the bodies designing and implementing projects, the establishment of a monitoring system to support local bodies through the development of appropriate indicators, tools and consultation mechanisms, as well as the formulation of education and training programmes for blue jobs.

In the programming period 2021-2027, eligibility and possible funding sources for projects relevant to the Maritime and Marine Governance and Services are as follows;

- ✓ INTERREG
- ✓ EMFF (CLLD- Community Led Local Development Strategies)
- ✓ ERDF
- ✓ ESF

The following Table presents indicative projects or groups of projects, that could be implemented in the programming period 2021-2027, relevant to the third Flagship of the EUSAIR Pillar 1 “Blue Growth” (F3: Bolstering capacity building and efficient coordination of planning and local development activities from improving marine kai maritime governance and Blue Growth services).

<b>Flagship F3 (Proposed Actions)</b>	<b>Indicative Projects/Groups of Projects</b>
Development of fishtourism and ichtyotourism	<ul style="list-style-type: none"> <li>• Enhancement of alternative business models for local fish communities</li> </ul>
Marine litter	<ul style="list-style-type: none"> <li>• Development and implementation of new technological solution for monitoring marine litter</li> <li>• Involvement of local society for data collection (citizens' science)</li> </ul>
Creation of start-ups and local employment and promotion of partnership working, improve the levels of skills and expertise for the working manpower in maritime sector	<ul style="list-style-type: none"> <li>• Development of blended educational and training schemes for sharing knowledge, experience and expertise in bleu sectors</li> </ul>
Governance of maritime space for a sustainable and transparent use of maritime and marine resources.	<ul style="list-style-type: none"> <li>• Development of share data system at sea basin level and use of new IT applications</li> </ul>
Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions	<ul style="list-style-type: none"> <li>• Capacity building for the adoption of local development plans, zoning etc.</li> </ul>
Promotion of blue skills	<ul style="list-style-type: none"> <li>• Establishment of a network of Blue Career Centres in the EUSAIR countries aiming to attract young people and experienced workers and fill existing skills' gaps by supporting activities that will increase employability in key Blue sectors of the Adriatic – Ionian region</li> </ul>
One-stop-shops' operation for SMEs support	<ul style="list-style-type: none"> <li>• Adriatic-Ionian Blue financing, could be macro-regional projects exploring innovative financial and incentives instruments to facilitate the access to seed and venture capital, such as crowdfunding, blending mechanisms, etc. This could also be linked to instruments of the EIB and EIF or other international funding bodies.</li> </ul>
Promotion of blue skills	<ul style="list-style-type: none"> <li>• Development of educational and training programs (e.g. university and/or professional) to support the development of skilled human</li> </ul>

	<p>capital on Blue Technologies.</p> <ul style="list-style-type: none"> <li>• Establishment of a Network of Blue Career Centers in the EUSAIR countries.</li> </ul>
Encouragement & creation of clustering, especially of quadruple helix	<ul style="list-style-type: none"> <li>• Development of transnational clusters in the Adriatic-Ionian on promising sectors, such as marine renewable energies, green shipbuilding and new materials, enhancing the exploitation of emerging technologies and fostering linkages and collaborations among all the stakeholders of the Quadruple helix.</li> </ul>
Research on Blue Technologies; & prioritization of its adoption by SMEs in the macro-region	<ul style="list-style-type: none"> <li>• Fostering diffusion of marine renewable energy technologies through the development, demonstration and validation of blue energy pilot prototypes in the Adriatic-Ionian region.</li> <li>• Research platform for marine robotics, e.g. unmanned marine underwater vehicles for blue biotech and/or marine mineral resources exploration activities.</li> <li>• Research platforms for green shipbuilding, boat building and new materials</li> <li>• Research on blue technologies and its usage by SMEs to remediate the Blue Environment (sea, estuaries etc.) in order to be active and alive</li> </ul>
Allowing development of novel eco-friendly end products that serve circular economy	<ul style="list-style-type: none"> <li>• Research platforms on the exploitation of micro-organisms growing in the macro-region for the production of innovative products through the valorization of residual bioresources streams.</li> </ul>
Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries	<ul style="list-style-type: none"> <li>• Innovative biotech products from the macro-region's sea biological resources in various socially relevant fields, such as well-being (medicine, cosmetics), food and feed, environment (novel materials-e.g. biopolymers, bioremediation).</li> </ul>
Development of solutions to decarbonize (fishing) fleets	<ul style="list-style-type: none"> <li>• Development of solutions to decarbonize (fishing) fleets (e.g. new materials, shore-based supply of electricity for vessels in ports and innovative propulsion modes and fuels, etc. (switch from diesel to Liquid Natural Gas and electric vessels)).</li> </ul>

## **5.6. PROPOSED PROJECT IDEAS**

This section presents the proposed project ideas, relevant to Pillar 1 “Blue Growth” topics and Flagships for the programming period 2021-2027. These project ideas are the outcome of the analysis conducted in the previous sections of this report and take into account the survey results and the focus groups’ conclusions, the wider developments in the Blue Growth sectors and the specific characteristics of the Adriatic – Ionian region. The following Table summarizes the project ideas developed in detail in the next sections.

<b>A/A</b>	<b>Project Idea</b>	<b>Relevant Flagship (s)</b>
<b>BLUE TECHNOLOGIES</b>		
1.	Crowdfunding for Enterprises in Blue Technologies	One-stop-shops’ operation for SMEs support
2.	Blue Innovation Voucher Mechanism	Promotion of blue skills, reinforcement of networking, knowledge sharing & creation of databanks, enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries, allowing development of novel eco-friendly end products that serve circular economy
3.	Seed Funds to Support Technology Transfer from Innovators to Traditional Businesses in the Field of New Materials For Green Boatbuilding	Research on Blue Technologies and prioritization of its adoption by SMEs in the macro-region
4.	Establishment of a Network of Blue Career Centres in the EUSAIR countries	Promotion of Blue skills
5.	Development of international Master BB Programme in the macro-region	Promotion of Blue skills
6.	Capitalization of previous project results in the sector of Blue Technologies	Research on Blue Technologies
7.	Production of electricity from Renewable Energy Sources (RES) in shipyards	Research on Blue Technologies
8.	Development of hybrid installations for marine and offshore wind energy combined with aquaculture, fish-farming, etc.	Research on Blue Technologies
9.	Development of solutions to decarbonize all the maritime mobility activities	Development of solutions to decarbonize (fishing) fleets
10	Creating an Adriatic and Ionian innovation community for interregional cooperation	Encouragement and creation of clustering, especially in quadruple helix
11	Using Artificial Intelligence-AI and Big Data in marine technologies	Research on Blue Technologies
12	Production of new anti-bio fouling compounds leading to a lower energy consumption in the shipping	Research on Blue Technologies
13	Creation of Circular Economy Action	Allowing development of novel eco-friendly



	Plans	end products that serve circular economy
14	Use of Aquaculture Wastewater for Phytoplankton Culture	Allowing development of novel eco-friendly end products that serve circular economy.
15	Seaweed Cultivation in Integrated Multi-Trophic Aquaculture	Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries
16	Cross Pillar Project Idea (Pillar 1 “Blue Growth, Pillar 3: Environmental Quality): Restoration actions for environmental restoration and BB applications	Research on Blue Technologies
17	Cross Pillar Project Idea (Pillar 1 “Blue Growth, Pillar 3: Environmental Quality): Sophisticated systems for pollution monitoring	Research on Blue Technologies
<b>FISHERIES AND AQUACULTURE</b>		
18	Development of a quality assurance standard for fish traded in Greek fish landing sites	Trade: refers to facilitation of trade of fisheries products, traceability, certification”
19	Actions to diversify income of fishermen (fishtourism) and improve the status of marine ecosystems, targeting actions to remove plastics and prevent ghost gears	Promoting sustainability, diversification and competitiveness in the fisheries sector
20	Actions for environmental restoration of marine ecosystems	Research on Blue Technologies Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and in-situ monitoring of their efficiency
21	Correlating biotic and abiotic factors for the development of a prognostic model of disease outbreaks in aquaculture fish farms	Technology: Methodological and technical issues related to farming. Ichthyopathology and treatment are of high priority and exchange of information is vital
22	Introduction of a centralized database of genetic and other biological data on fish stocks and regular genetic monitoring of all certified fish farms	Technology: Methodological and technical issues related to farming. Nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital
23	Development of a novel IoT environmental monitoring system for use in Allocated Zones of Aquaculture	Technology: Methodological and technical issues related to farming
24	Identification of biomarkers for early detection of dietary anti-nutritional factors affecting the growth, health and welfare of European seabass <i>Dicentrarchus labrax</i>	Technology: Methodological and technical issues related to farming. Nutrition, is of high priority and exchange of information is vital
<b>MARINE AND MARITIME GOVERNANCE AND SERVICES</b>		
25	Novel devices to prevent marine litter to enter in the sea and ways to process marine litter	Trans-regional cooperation between community-led local development (CLLD) strategies for actions to combat marine litter pollution.
26	Innovation Lab for insular Blue Growth	Creation of start-ups and local employment and promotion of partnership working, improve the levels of skills and expertise for the working manpower in maritime sector

27	Development of a shared data system at sea basin level	Governance of maritime space for a sustainable and transparent use of maritime and marine resources
28	Development of a common framework for implementing circular economy projects in Blue Growth sectors	Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions
29	Common guidelines and tools for climate adaptation and SDGs	Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions
30	Maritime surveillance	Governance of maritime space for a sustainable transparent use of maritime and marine resources

### 5.6.1. Blue Technologies

#### *Crowdfunding for Enterprises in Blue Technologies*

**Brief description:** The project idea concerns the development of a mechanism that will support MSMEs through the development of One-stop-shops towards funding using the instrument of Crowdfunding. One of the major needs that all very small, small and medium enterprises have is the access to funding. This project will tackle this need through the Crowdfunding concept.

**Significance of the Project:** This project will allow SMEs to have access to alternative methods of financing an aspect that is of great importance for every small, small and medium enterprises. The crowdfunding concept has the potential to further foster innovation in the macro-region by offering new sources of capital to aforementioned enterprises in the sector of Blue Technologies and reduce the funding gap for innovative start-ups.

**Relevance with Pillar Flagship(s):** The project is relevant with the flagship of One-stop-shops' operation for SMEs support (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy).

**Potential stakeholders:** Universities, Research Centres and Public Authorities from the EUSAIR Member countries.

**Potential financial resources:** The project could be funded by the European Regional Development Fund (ERDF-Policy Objective 1) and/or Instrument for Pre-accession Assistance (IPAI) under Cross Border Cooperation and Transnational Programmes (INTERREG).

### **Blue Innovation Voucher Mechanism**

**Brief description:** Implementation of a Blue Innovation Voucher Mechanism including:

- Building of Blue Skills, thanks to one-on-one and collective consulting - coaching, valorising the creation of a Blue consultants' roaster
- The creation of an on-line Gallery of Knowledge Providers for the Innovation Vouchers Call
- Structured networking intra-regional & transnational activities in all pilot areas, to achieve regional and transnational networking B2B, B2R, B2G, R2R, R2G
- A trans-national Blue Innovation Vouchers Call, having as a priority, among others, circular economy and strongly valorising Smart Specialisation Strategies of each Pilot Region.

**Significance of the Project:** The Blue MSMEs need to develop innovation in order to evolve, but are mainly of very small size, family business, which cannot run heavy research projects, for operational and financial reasons. At the same time, they need to build on their Blue Skills, especially regarding innovation development, as well as their networking, both at regional and trans-national level. Blue Innovation Vouchers will offer Blue MSMEs the possibility to run small-scale technology transfer projects, following light, business-friendly procedures and practically without any turnover limits or co-financing obligations. At the same time, they will offer them great opportunities for competencies' development, especially on innovation development with a focus on circular economy, as well as networking.

**Relevance with Pillar Flagship(s):** "Promotion of blue skills", "Reinforcement of networking", "knowledge sharing & creation of databanks", "Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries", "Allowing development of novel eco-friendly end products that serve circular economy" (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy).

**Potential stakeholders:** Universities, Research Centres, Public Authorities from EUSAIR Member countries.

**Potential financial resources:** European Regional Development Fund (ERDF)-Instrument for Pre-accession Assistance (IPAI)/ mainly under Cross Border Cooperation and Transnational Programmes.

### **Seed Funds to Support Technology Transfer from Innovators to Traditional Businesses in the Field of New Materials For Green Boatbuilding**

**Brief description:** There is a double need: traditional businesses need to innovate, on one side; new innovative/sustainable products need to be developed through open innovation able to cluster research and MSMEs, on the other.

**Significance of the project:** To promote sustainable new products and innovative traditional business in the macro-region.

**Relevance with Pillar Flagship(s):** “Research on Blue Technologies and prioritization of its adoption by SMEs in the macro-region” (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities.

**Potential financial resources:** European Regional Development Fund (ERDF – Policy Objective 1), Instrument for Pre-accession Assistance (IPAI) under Cross Border Cooperation and Transnational Programmes (INTERREG). Potential complementarity with RIS Strategies of the EU member countries of EUSAIR.

### **Establishment of a Network of Blue Career Centres in the EUSAIR countries**

**Brief description:** Establishment of a network of Blue Career Centres in the EUSAIR countries aiming to attract young people and experienced workers and fill existing skills’ gaps by supporting activities that will increase employability in key Blue sectors of the Adriatic-Ionian region.

**Significance of the project:** The proposed project seeks to provide prospects for young people in the Blue Economy sectors (both established and emerging sectors) to support business in finding the right staff with proper qualifications. Retrain and up-skill workers employed in other sectors and/or people currently unemployed for a job in the blue economy. Diversify and expand the skills of people currently employed in the Blue economy to progress in their career and/or to facilitate their mobility to other maritime jobs.

**Relevance with Pillar Flagship(s):** Promotion of Blue skills (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Clusters, Public Authorities

**Indicative budget, potential financial resources:** European Maritime, Fisheries and Aquaculture Fund (EMFAF), European Social Fund +, mainly under Cross Border Cooperation and Transnational Programmes (INTERREG).

**Other information:** The existing Blue Career Centre for the Eastern Mediterranean and the Black Sea is an example and model for all other sub-sea basins in view of a future European Network of Blue Career Centres that will bring together all the stakeholders of the various European Marine and Maritime Clusters in a common effort to close the skills gap, tackle unemployment and make “blue careers” more attractive to the young people of Europe and its neighborhood.

#### *Development of international Master BB Programme in the macro-region*

**Brief description:** Development of a Master degree programme that will focus entirely on Blue Biotechnologies and dedicated to their application in the health, nutrition and aquaculture domains, addressing the skills gaps in the sector in the macro-region. The cutting-edge of marine biotechnology lacks high-skilled scientists with both academic and practical knowledge. The structure of the Master programme can be a public-private partnership involving academic organisations and Small and Medium Sized Enterprises (SMEs) from the EUSAIR countries. Under the Master programme, students will receive academic and practical knowledge, in addition to soft and technical skills. Also, each student can be associated to a project led by a Blue Biotechnology industrial partner, which will be able to host the apprentice or intern. Workers wanting to increase their knowledge or people seeking employment could also benefit from the programme.

**Significance of the project:** The project aims at transferability from the outset. It will identify and expand good practices from each country involved, encourage mutual learning between EUSAIR industries and academics in the Blue Biotechnology field and address skills gaps.

**Relevance with Pillar Flagship(s):** “Promotion of Blue skills” (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in Blue Bio-economy).

**Potential stakeholders:** Universities, Research and training institutions, Companies

**Indicative budget, potential financial resources:** European Regional Development Fund and European Social Fund + (Policy Objective 4), Instrument for Pre-accession Assistance (IPAI) under Cross Border Cooperation and Transnational Programmes (INTERREG) and National/Regional Operational Programmes of the EU member

countries of the EUSAIR, ERASMUS+ programme.

**Other information:** The “Blue Biotechnology Master for a Blue Career-BBMBC”, including academic organisations and SMEs from France, Portugal, Spain and the United Kingdom, is an example and model for implementation in the EUSAIR countries.

### *Capitalization of previous project results in the sector of Blue Technologies*

**Brief description:** This type of projects will aim to capitalize the existing project results, not only achieved in the framework of the Interreg ADRION but also coming from other corresponding initiatives developed at local, regional, national, and transnational level. These complementary initiatives are for instance, other Interreg programmes (interregional, transnational and cross-border dimensions), Neighborhood programmes (ENI MED), EU thematic Programmes (e.g. Horizon 2020, LIFE+, European Investment Bank), International Organisations Programmes (World Bank, United Nations, Union for the Mediterranean), Regional Programmes including those financed under the European Structural and Investment Funds. The objective of these projects is to go further the existing results. The main outputs that will be developed from these projects can be policy recommendations, procedures, protocols, charters, tools, services/products, etc.

**Significant of the project:** This type of projects can start from an advanced technology readiness level. Although, there is a little area for research, there is more area for capitalizing on previous results. One step further for concrete implementation.

**Relevance with Pillar Flagship(s):** “Research on Blue Technologies” (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities

**Potential financial resources:** European Regional Development Fund (Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational Programmes (INTERREG).

### *Production of electricity from Renewable Energy Sources (RES) in shipyards*

**Brief description:** Shipbuilding industry is considered as one of the key global industries. It consumes a significant amount of energy while also leaves a strong

footprint on the environment. The idea concerns the development of offshore wind turbines in combination with solar panels and/or tidal and wave energy systems. These types of RES can be the main renewable energy sources in shipyards, given the complex nature of shipbuilding process, the heavily exploited shipyard area and the complex geographical placement.

**Significant of the project, Expected (macro-regional) results:** The concept could improve energy efficiency of shipyards and reduce their environmental impact. Positive public perception, as such activities are generally well accepted. New and competitive product. Opportunity for the development of a Green Deal.

**Relevance with Pillar Flagship(s):** Research on Blue Technologies” (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy).

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies

**Indicative budget, potential financial resources:** European Regional Development Fund (ERDF-Policy Objective 2), European Funds for Strategic Investment (EFSI), European Maritime, Fisheries and Aquaculture Fund (EMFAF), under Cross Border Cooperation and Transnational Programmes (INTERREG), or EU directly managed programmes (Horizon Europe).

### *Development of hybrid installations for marine and offshore wind energy combined with aquaculture, fish-farming, etc.*

**Brief description:** The concept concerns the integration of offshore wind turbines with aquaculture/fish farming systems in an offshore multi-purpose platform.

**Significant of the project:** The concept of multi-use-platform offers a significant cost reduction by allowing multiple use of space and infrastructure, through co-located and shared technologies and optimization of maritime spatial planning. Furthermore, for remote and island communities of the macro-region, not able to access the utilities grids, a multi-purpose platform may constitute the only secure, sustainable and affordable source of energy, food and jobs.

**Relevance with Pillar Flagship(s):** Research on Blue technologies (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies.

**Indicative budget, potential financial resources:** European Regional Development Fund (ERDF-Policy Objective 2), European Funds for Strategic Investment (EFSI), European Maritime, Fisheries and Aquaculture Fund (EMFAF), under Cross Border Cooperation and Transnational Programmes (INTERREG), or EU directly managed programmes (Horizon Europe).

### *Development of solutions to decarbonize all the maritime mobility activities*

**Brief description:** The project idea concerns the development of solution to decarbonize all the maritime mobility activities (e.g. ships, yachts, and fishing & aquaculture vessels) including all the relevant stages (i.e.: *Development:* e.g. Ballast-Free System, LNG Fuel for Propulsion, Exhaust Scrubber System, Speed Nozzles, RES on board, etc. *Operation:* e.g. ship speed reductions, smoother ship-port interfaces, etc., and *End of life:* e.g. ship recycling), as the environment must be considered in all the details of shipping, from a build a new vessel through its decommissioning.

**Significance of the project:** Technological innovation creates business opportunities around zero-carbon shipping, which can be a source for green growth and green jobs in the macro-region.

**Relevance with Pillar Flagship(s):** Development of solutions to decarbonize (fishing) fleets (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities.

**Potential financial resources:** European Fund for Strategic Investments (EFSI), Connecting Europe Facility (CEF), Horizon Europe.

### *Creating an Adriatic and Ionian innovation community for interregional cooperation*

**Brief description:** The idea concerns the development of Adriatic-Ionian innovation community with aim of building and establishing transnational value chains in the area, promoting and boosting interregional innovation collaboration, increasing macro-



regional market opportunities by identifying transnational complementarities and synergies and common interests for development, decreasing the cross-country heterogeneity, that it is still high, and supporting cooperation and partnership among EUSAIR countries. Community will gather stakeholders of different types and levels involved in R&D&I including industry and entrepreneurial sector, education and research institutions, government and civil society. Functional and operational linkages with other stakeholders/actors belonging to Med area will be welcome as complementary action.

**Significance of the project:** Strengthen interregional innovation collaboration, increase macro-regional market opportunities, decrease cross-country heterogeneity, and support cooperation and partnership among EUSAIR countries.

**Relevance with Pillar Flagship(s):** Encouragement and creation of clustering, especially in quadruple helix (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy).

**Potential stakeholders:** Universities, Research centres, Public Authorities, industry and entrepreneurial sector.

**Potential financial resources:** European Regional Development Fund (Policy Objective 1), Instrument for Pre-accession Assistance (IPAI) under Cross Border Cooperation and Transnational programmes (INTERREG).

### *Using Artificial Intelligence-AI and Big Data in marine technologies*

**Brief description:** Big data and AI gradually transforming the traditional process of the maritime industry. The application of these technologies can provide new opportunities to improve productivity, efficiency and sustainability. Some of the benefits of AI in the shipping industry include but are not limited to, improved analytics for decision-making, automation, safety, route optimization and increased efficiencies. Other example of AI in the marine industry can be the use of AI in combination with robotics in the field of deep-sea mining. The idea concerns the use of small robots to manoeuvre around the seabed and mine for metals. AI is used for both guide the robots and also analyze the robot's sensor signals allowing them to pinpoint mineral deposits with far greater precision than human while mitigating the environmental impact of deep-sea mining. AI could also help scientists and researchers to shed new light on the variety of species living on the ocean floor for the sector of blue biotech.

**Relevance with Pillar Flagship(s):** Research on Blue Technologies (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation

in blue bio-economy)

**Significance of the project:** Given that blue biotech and especially deep-sea mining are at an early stage and/or exploratory stage of development in the macro-region, the use of AI in combination with robotics in the aforementioned sectors can lead to further exploration activities, both in the development of new innovative products and in the exploration of new species living on the ocean floor, while mitigating environmental impact. Furthermore, the use of AI from the shipping industry of the macro-region would innovate traditional business, foster competitiveness and dramatically improve efficiencies by reducing the impact of human error, optimizing the best routes automatically and cut down emissions by improving the efficiencies of various onboard systems.

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies.

**Potential financial resources:** European Regional Development Fund (ERDF-Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational Programmes (INTERREG), or EU directly managed programs (Horizon Europe).

### *Production of new anti-bio fouling compounds leading to a lower energy consumption in the shipping*

**Brief description:** During a ship's lifetime microorganisms, plants, algae, etc. are gathered in its hull, during a process called biofouling. These organisms, known as invasive aquatic species, can negatively affect a ship's operation, while they also present a threat to the marine environment. However, there is a solution and is called antifouling. Biotechnological way for searching natural product antifouling compounds gained momentum in recent years due to environmental pollution associated with the use of toxic chemicals to control biofouling. The concept concerns the development of new eco-friendly anti-bio fouling compounds from marine organisms, such as sponges, corals, ascidians, seaweeds, seagrasses, etc. that show strong antimicrobial and also antifouling activities.

**Significance of the project:** Promotion of innovation and sustainability, through the development of eco-friendly anti-bio fouling compounds, decreasing the accumulation of invasive species, improving the overall performance of ships and protecting the environment.

**Relevance with Pillar Flagship(s):** Research on Blue Technologies (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation

in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities.

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPAI) under Cross Border Cooperation and Transnational Programmes (INTERREG), or EU directly managed programmes (Horizon Europe), or European Maritime, Fisheries and Aquaculture Fund (EMFAF). Potential complementarity with RIS Strategies of the EU member countries of EUSAIR.

### *Creation of Circular Economy Action Plans*

**Brief description:** Creation of circular economy action plans for the territorial deployment of innovative solutions for creating circular economies through the valorization of residual bioresource streams.

**Significance of the project:** Circular economy can help to reduce competition for land and aquatic resources and fossil fuel dependence, contribute to the mitigation of climate change and biodiversity loss. A sustainable and circular bioeconomy would keep resources at their highest value for as long as possible through cascading biomass use and recycling, while ensuring that natural capital is preserved. However, both bioeconomy and circular economy may have environmental impacts if an integrated assessment encompassing all life cycle stages of production and consumption is missing. So, the adoption of life cycle assessment is crucial to unveil trade-offs and ensuring identifying the best options for bio-economy and circular economy implementation.

**Relevance with Pillar Flagship(s):** Allowing development of novel eco-friendly end products that serve circular economy (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities

**Potential financial resources:** European Regional Development Fund (ERDF-Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG).

### *Use of Aquaculture Wastewater for Phytoplankton Culture*

**Brief description:** Appropriate plankton species in EUSAIR regions and culture practices for improving biomass and quality, probably in two steps. Use of phytoplankton as aquafeed additive or for the production of bioactive compounds.

**Relevance with Pillar Flagship(s):** Allowing development of novel eco-friendly end products that serve circular economy.

**Potential stakeholders:** Universities, Research centres, Public Authorities

**Potential financial resources:** European Regional Development Fund (ERDF-Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG) or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

### *Seaweed Cultivation in Integrated Multi-Trophic Aquaculture*

**Brief description:** Elucidation of the seaweed effects on fish metabolism and welfare, proliferation of seaweed culture under control conditions and use of seaweeds as aqua feed additives. Potential for Integrated Multi-Trophic Aquaculture (IMTA) in EUSAIR regions.

**Potential stakeholders:** Universities, Research centres, Public Authorities

**Relevance with Pillar Flagship(s):** Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy).

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational Programmes (INTERREG), or EU directly managed programmes (Horizon Europe), or European Maritime, Fisheries and Aquaculture Fund (EMFAF). Potential complementarity with RIS Strategies of the EU member countries of EUSAIR.

**Cross Pillar Project Idea (Pillar 1- Blue Growth, Pillar 3- Environmental Quality):  
Restoration actions for environmental restoration and BB applications**

**Brief description:** Over the years, anthropogenic activities have disturbed different ecosystems, severely limiting the natural generation capacity of these environments. Studies have shown that microorganisms may play an important role in remediating and improving disturbed ecosystems, and henceforth can contribute to several sustainable development goals. The project idea focuses on the development of BB applications along with marine environmental restoration. For example, microalgae biotechnology deals with microalgae products for environmental applications.

**Significance of the project::** Promotion of sustainable new products, while maintaining environmental productivity and restoring environmental quality.

**Relevance with Pillar I Flagship(s):** Research on Blue Technologies (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), or EU directly managed programmes (Horizon Europe, LIFE+), or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

**Cross Pillar Project Idea (Pillar 1-Blue Growth, Pillar 3-Environmental Quality):  
Sophisticated systems for pollution monitoring**

**Brief description:** The project idea concerns the development of sophisticated systems (e.g. autonomous technology systems) that could gather information on marine litter (e.g. distribution, hot spot) useful to develop management plans and clean-up programmes or/and on water quality and support the development of measures against pollution.

**Significance of the project:** The autonomous technology systems will be able to provide monitoring of the state of marine litter and support operational activities to mitigate impacts on the marine ecosystems. The need to protect and manage the vulnerable natural environment and marine resources in a sustainable manner is an important policy that is manifested in European legislation such as the European Strategy for Marine and Maritime Research.

**Relevance with Pillar I Flagship(s):** Research on Blue technologies (under F1: Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies for advancing innovation, business development and business adaptation in blue bio-economy)

**Potential stakeholders:** Universities, Research centres, Public Authorities

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), or EU directly managed programmes (Horizon Europe).

## 5.6.2. Fisheries and Aquaculture

### Fisheries

#### *Development of a quality assurance standard for fish traded in Greek fish landing sites*

**Brief description:** The objective of the project is the development of an innovative quality assurance system for the trade of fresh Greek catches. That can be also a common standard for all EUSAIR countries. An innovative standard will be introduced, which will certify the use of good practices in the handling and marketing of fishery products. The model will be designed by specialized University and Research Institutions, based on special schemes that will evaluate the quality of fish, from catching to marketing.

The aim is to certify the freshness, the nutritional value of the origin and the safety of the fishery products that are traded in the Greek market. The ultimate goal of the project is to protect public health and consumer interests, including ensuring fair fish marketing practices. The methodology, procedures and critical control points will be defined, which will be described in detail in a quality assurance standard and will concern both the control of the quality of the catches and the adequacy of the handling facilities on the fish landing sites. The application of the standard will be reflected in the use of a commercial label, which will be a tool for the recognition of the added value of Greek fish (or from other EUSAIR countries).

The introduction of the freshness parameter is a pioneer for catch quality systems and is expected to add value to fish of Greek origin in relation to the imported ones.

**Significance of the project:** Possible use of a commercial label, which will be a tool for recognizing the added value of fish that is produced in the Adriatic-Ionian macro-region, will contribute to increase fishermen's income and develop the industry through sustainable practices. Finally, new jobs will be created in order to carry out the

necessary quality controls and to maintain compliance with the standard (quality controllers, laboratory staff, specialized staff at points of sale - distribution).

**Potential stakeholders:** Universities, Research Centres, Public Authorities, Fishermen Organisations, Companies

**Relevance with Pillar Flagship(s):** “Trade: refers to facilitation of trade of fisheries products, traceability, certification” (F2 - Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits).

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG).

**Other information:** The project idea was presented in the Focus Group on Fisheries, by Mr. Ioannis Boundoukos and Mrs Kleio Psarrou, PEPMA, Greece.

*Actions to diversify income of fishermen (fishtourism) and improve the status of marine ecosystems, targeting actions to remove plastics and prevent ghost gears*

**Brief description:** The objective of the project is the development of diversification activities of fishermen in non-EU countries of the Adriatic-Ionian macro-region. Albania has acquired experience from its participation in previous EU funded projects (DeFishGear 2013-2016; TOURISMED Project<sup>52</sup> 2017 – 2019) and aims to continue these activities in other areas of the country in cooperation with other EUSAIR countries. The idea is to set up a system for collection and recycling of derelict fishing gear, including the so-called ghost nets, and collection of floating litter and litter from the sea bottom, caught in the nets while fishing. Also, the project aims to further expand and transfer a fishing tourism business model in the coastal territories of the Adriatic-Ionian macro-region as a way to promote a sustainable approach to tourism, while fostering the preservation of the marine ecosystem and traditional fishing culture of the region. The coastal areas face the common challenge of finding new solutions for the worrying depletion of marine resources, the decline of the artisanal fishing sector and the negative impacts of tourism such as social dislocation, loss of cultural heritage and ecological degradation. As a response, the project objective is to promote fishing tourism as a sustainable coastal and maritime tourism practice in the Adriatic-Ionian macro-region.

The project will promote this model and will replicate it in the concerned area. Training

<sup>52</sup> Fishing TOURISM for a Sustainable tourism development in the MEDiterranean area.

courses will be organised involving fishermen and touristic itineraries will be organized in cooperation with local tourism operators. The final model will be promoted by a web tool to clients willing to set up a fishing tourism business, while an interactive map of itineraries will be used to reach tourists. Protocols with public bodies and fishing associations (MoU) followed by policy recommendations will ensure sustainability of project's impacts.

**Significance of the project:** This project will improve the use of resources by artisanal fishery, a diversification of income in the sector and a better valorisation of coastal traditional heritage and local seafood.

**Relevance with Pillar Flagship(s):** Promoting sustainability, diversification and competitiveness in the fisheries sector (F2 - Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits).

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies, fisheries organisations

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG).

**Other information:** The project idea was presented in the Focus Group on Fisheries, by Dr.Jerina Kolutari, Agriculture University of Tirana, Albania.

#### *Actions for environmental restoration of marine ecosystems*

**Brief description:** Over the years, anthropogenic activities have disturbed different marine and coastal ecosystems severally, limiting the natural generation capacity of these habitats. The objective of the project is to validate the efficiency and relevance of a combination of currently isolated restoration technologies, by deploying them in selected Adriatic Ionian contrasted sites and establishing an international and multidisciplinary task force composed of public and private partners detaining unique expertise and advance in the field of marine ecosystem restoration. The project is based on the deployment of three innovative and complementary solutions designed to enhance habitat features in areas where shallow-water habitats have been degraded or replaced by maritime infrastructures. The combination of all or part of the following three technologies given the sites of application, will enhance the functionality of urban and port coastlines with a specific focus to boost marine-life stocks in these depleted areas. All technologies have been tested in pilot scale experiments in the



Mediterranean:

**1. Enhancement of hard substrate habitat features on maritime infrastructures:**

The first solution aims to enhance hard substrate habitat features of seawalls by adding specifically designed panels, developed by EConcrete®. Their increased structural complexity provides additional shading and refuge while their surface properties support growth of various species of marine fauna and flora. The restoration value of this technology is an increase in benthic richness and enhanced hard substrate functionality on the port and coastal infrastructures. The panels can be tailored to induce growth of specific species of conservational value.

**2. Enhancement of sea-grass like habitat features on maritime infrastructures:**

The construction of maritime infrastructure has severely degraded and destroyed essential nursery habitats such as seagrass beds. Although certain studies have shown that some port areas could serve as nursery habitats for certain species, the general featureless design of most port infrastructures limit this nursery potential and restrict it to a limited number of rocky species. The deployment of artificial sea-grass habitat, along vertical infrastructures will aim to promote the recruitment, survival and maturation of fish larvae and juveniles in port areas, including of some species preferably associated to seagrass beds. The global objective is to regain significant nursery functionality along artificialized coastlines to ensure the proper renewal of stocks.

**3. Enhancement of connectivity between maritime infrastructures and adjacent natural and functional ecosystems:**

Connectivity between port areas and their adjacent coastlines and surrounding functional ecosystems will be enhanced by the installation of artificial reefs and Fish Cradle Devices (FCDs), developed and tested by HCMR. The FCD are three dimensional structures constructed from nets, ropes and other inexpensive materials, designed following the principle of collapsible megatraps, and directly fixed to the seabed. These devices aim to increase marine fishery resources by reducing natural fish mortality in the period between spawning and settlement. They will ensure increased survival of larvae flows on their way into shore and port areas, and of juveniles as they set out from these areas to settle on deeper surrounding natural habitats.

These solutions will be deployed in selected areas in the Adriatic-Ionian macro-region in order to test and evaluate their efficiency in contrasted ecological and institutional contexts. This tripartite action will promote scientific, industrial and socio-economic cooperation across the Mediterranean on the subject of restoration.

A thorough scientific monitoring programme will be deployed to evaluate the efficiency of the restoration actions focusing on different compartments of the environment and at different scales. Evaluation will be based on the observation of the evolution of benthic communities, juvenile fish populations and adult fish stocks. The impact of chemical

contaminants linked to port activities on living organisms will be assessed through a specific and monitoring program.

A series of socio-economic and broader ecological studies will be undertaken to support an active upscaling strategy. These will include ecological fish stock modelling, cost-benefit analysis, research on novel models of financing and strategic evaluation of upscaling policy scenarios focused on Marine Protected Areas.

**Significance of the project:** Promotion of sustainable new products, while maintaining environmental productivity and restoring environmental quality.

**Relevance with Pillar Flagship(s):** Research on Blue Technologies (F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy), Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and in-situ monitoring of their efficiency (F2: Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits).

**Potential stakeholders:** Universities, Research centres, Public bodies, Companies

**Indicative budget, potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), National/Regional Operational Programmes of the EU member countries, EU directly managed programmes (Horizon Europe, LIFE+), or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

**Other information:** The project idea was presented in the Focus Group on Fisheries by Mr. Argyris Kapantagakis, Hellenic Centre for Marine Research, Greece

## Aquaculture

### *Correlating biotic and abiotic factors for the development of a prognostic model of disease outbreaks in aquaculture fish farms*

**Brief description:** The aim of the project is to develop a prognostic model, which will enable the end users (marine aquaculture farms) to determine the critical points at which interventions are necessary to prevent disease outbreaks in marine farmed fish. The model will be based on environmental data that include both biotic and abiotic factors. The study area will be fish farms from the Adriatic-Ionian macro-region. The

basic axes of the project are:

- 1) The monitoring and recording of hydrological and environmental parameters of the study area,
- 2) The isolation and identification of disease causing agents (bacteria, parasites viruses) from infected fish,
- 3) The development and application of specialized molecular tools and protocols for the detection and quantification of the infectious agents in environmental samples and in particular in aquafarm waters
- 4) The correlation of the predominant environmental conditions with the presence of infectious agents and the outbreaks of diseases in fish for the development of the prognostic model.

From filtered water samples microbial DNA extraction and total RNA extraction will allow a) Microbiome profiling and library construction of 16S rDNA amplicon metabarcoding and b) RNA libraries construction and sequencing. This will allow the estimation of:

- Microbial diversity indices
- Bacterial profiles of samples
- Genetic correlations between samples
- Development of NGS- and qPCR-based methods for the detection of pathogens in water samples.

The above described abiotic and biotic environmental data that are being collected, will be combined to establish, through a mathematical model, the correlations that will permit the prediction of probable disease outbreaks in the aquaculture farms in the region of interest.

**Significance of the project:** The prospects of the project include:

- Extend the study to a wider geographical area with important aquaculture activities (e.g. the ADRION macro-region)
- Look beyond fish and microbes (e.g. mollusks and harmful algae)
- Apply IoT technologies to monitor environmental (physicochemical) parameters to feed data into the model.

**Relevance with Pillar Flagship(s):** Technology: Methodological and technical issues related to farming. Ichthyopathology and treatment are of high priority and exchange of information is vital (F2: Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits)

**Potential stakeholders:** Universities, Research Institutes, Public Authorities,

aquaculture companies

**Indicative budget, potential financial resources:** European Regional Development Fund (ERDF Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational Programmes (INTERREG), National/Regional Operational programmes or European Maritime, Fisheries and Aquaculture Fund (EMFAF). Potential complementarity with the RIS Strategies of EU member countries of the EUSAIR.

**Other information:** The project idea was presented in the Focus Group on Aquaculture by Dr. Grigorios Krey, Fisheries Research Institute, Greece.

### *Introduction of a centralized database of genetic and other biological data on fish stocks and regular genetic monitoring of all certified fish farms*

**Brief description:** The project idea concerns the current low knowledge about genetics in aquaculture among fish farmers especially in inland aquaculture. Currently, there is lack of regular and comprehensive genetic monitoring of stocks. Fisheries maintain the same fish stocks for spawning for generations resulting to high rate of inbreeding, decreased fitness and the inability of a population to self-sustain when released into the wild. As a result, there is an elevated frequency of morphological deformities in the smolts and fingerlings with subsequent significant financial losses. On the same time there is presence of allochthonous evolutionary lineages (e.g. Atlantic lineage of brown trout) in farm stocks that create “pollution” of the native (and endemic) gene pool through hybridization after restocking of rivers.

The objectives of the project idea include:

- Create a centralized database on current practices in aquaculture and fisheries regarding the implementation of genetic methods in the production process.
- Increase the level of knowledge on fish genetics and the possibilities of genetic methods in fish farming and aquaculture among farmers.
- Review the “genetic conditions” (heterozygosity, inbreeding) of fish stocks for selected fish species.
- Establish a collaborative network of research institutions skilled in genetic monitoring and enhance the knowledge and technology transfer (FishGeneHub).

**Significance of the project, expected (macro-regional) results:** The activities of the project include:

- Assess the infrastructural and human capacities in R&D sector for conducting a complete in-house genetic analysis of fish stocks.
- Assess the most relevant fish species in aquaculture and fisheries that would benefit from the implementation of genetic methods in the production process.
- Training sessions on genetic analysis and best European practices for the researchers within the network.
- Conduct genetic screening of fish stocks for selected fish species
- Organize educational workshops for fish farmers.
- Provide tailored consulting for the farmers based on the screening results of their respective stocks.

**Relevance with Pillar Flagship(s):** Technology: Methodological and technical issues related to farming. Nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital (F2: Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits)

**Potential stakeholders:** Universities, Research centers, Public bodies, inland fisheries organisations

**Indicative budget, potential financial resources** European Regional Development Fund (ERDF Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), National/Regional Operational programmes or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

**Other information:** The project idea was presented in the Focus Group on Aquaculture by Belma Kalamujić Stroil, University of Sarajevo, Institute for Genetic Engineering and Biotechnology, Bosnia and Herzegovina.

#### *Development of a novel IoT environmental monitoring system for use in Allocated Zones of Aquaculture*

**Brief description:** The coastal ecosystem is complex and cannot be understood sufficiently with short duration studies (spatial and temporal variability, cost, experimentation weakness). The most feasible solution is based on field measurements (basic system information, phenomenology) and using mathematical simulations to analyze the current situation and dynamics and develop a smart

management tool with multipurpose use (special planning decisions, monitor and forecast environmental parameters etc.). The aim of the proposal is to create an analytical managerial and forecasting system for the integrated design and control of marine aquaculture facilities and monitor their environmental impact. The proposed management system will provide significant assistance in decision-making in an objective matter by examining a number of important abiotic and biotic parameters.

Marine aquaculture has shown a particularly strong growth in recent years in the Adriatic - Ionian macro-region, ranking the macro-region first in the Mediterranean and contributing decisively to reverse the negative trade balance of fish, creating thousands of jobs directly and indirectly. Even more important is the fact that marine aquaculture is a viable alternative developmental proposal, in remote islands and coastal areas without other significant alternative employment opportunities of their workforce.

Marine aquaculture technology requires the development of this activity in relatively protected from the weather, coastal areas resulting often in controversies and conflicts between different users (tourism, urban development, fisheries, industrial development etc) and stating often as an argument the environmental protection. The latter point is a crucial issue for decision making of spatial planning because the coastal systems are of particular importance areas which require integrated management proposals. Therefore, there is a challenge for the State that has the responsibility for the siting and planning, environmental protection and the achievement of local development, local communities and for aquaculturists that will eventually will be the first to suffer from the effects of a potential disruption of environmental conditions, the existence of rules of responsible conduct and practices that are based on reliable scientific data and analytical tools. The proposed management system will be an important tool in decision-making objectively examining a number of important parameters.

The system will be coupled with advanced modelling systems able to make a prognosis of harmful algal blooms, dispersion of the farm effluents and will allow the development of a flexible decision support system for the more efficient and dynamic management of the AZA.

**Significance of the project:** Improved environmental monitoring of the aquaculture farms. It promotes the sustainable management of marine water resources with the implementation of specific measures or projects in environmentally sensitive areas, aiming at protecting ecosystems and economic development of coastal areas and islands. Moreover, the proposed proposal will contribute to ensure good environmental status of marine water resources by creating a database and monitoring of the water condition/status.

**Relevance with Pillar Flagship(s):** Technology: Methodological and technical issues related to farming (F2: Promoting Sustainability, Diversification and Competitiveness in

the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits)

**Potential stakeholders:** Universities, Research centres, Public Authorities, inland fisheries organisations.

**Indicative budget, potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), National/Regional Operational programmes or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

**Other information:** The project idea was presented in the Focus Group on Aquaculture by Mr. Ioannis Hekimoglou and Mrs Vasiliki Gorou, PANEMI, Greece.

#### ***Identification of biomarkers for early detection of dietary anti-nutritional factors affecting the growth, health and welfare of European seabass Dicentrarchus labrax***

**Brief description:** Fishmeal, the gold standard dietary protein source for aquaculture is based upon wild marine fish of no commercial value, however, it is considered both environmentally and ecologically unsustainable. Plant proteins are the most common replacements for fishmeal in aquafeeds. However, even when aquafeeds high in plant protein (> 50%) are formulated to provide the required balance of amino acids and other essential nutrients, the growth performance obtained is inferior to that of fish fed fishmeal-based diets due to anti-nutritional factors (e.g. phytosterols, saponins) and indigestible carbohydrates, as well as less efficient protein digestion and amino acid absorption. It has also been shown that different dietary protein sources alter fish gut microbiota and such changes have, at times, been linked to subsequent deterioration in health, immunity and growth. The aim of the BioMarkBass proposal is to identify biomarkers for the early detection of the presence of dietary anti-nutritional factors such as soybean saponins and phytosterols, which affect the growth, health and welfare of European seabass (*Dicentrarchus labrax*) and determine in parallel their dietary levels of tolerance for this important aquaculture species. The challenges are:

- a) to identify the upper threshold levels of anti-nutritional compounds such as soy saponins and phytosterols that will not affect fish growth performance and cause enteritis problems after long term on-growing experiments in seabass and
- b) establish biomarkers indicating the existence of these compounds in the fish feed and concurrently provide to fish farmers a valuable tool for evaluation of the nutritional

value of commercial feeds.

The effect of anti-nutritional factors on the microscopic structure of intestine and liver of seabass, includes study of the morphometry, estimating cell proliferation in intestine using PCNA immunohistochemical staining and metabolomics analyses.

**Significance of the project:** Marine ingredients such as fishmeal and fish oil from wild-caught fish and trimmings have been the main protein and lipid sources for cultured fish during the last decades. These feed sources represent ideal ingredients for the aquaculture sector by possessing a nutritional profile approximating to the nutritional requirements of most farmed aquatic species, vital for growth, health, reproduction and physiological well-being of farmed fish. However, the overexploitation of wild fish stocks, increasing demand, restricted availability as well as the limitations on the use of several animal derived proteins in fish feed formulations have directed the most recent research into looking for alternative protein and lipids source. The forecasted demand of finfish aquaculture will need protein and oil sources greater than current fish meal and fish oil production can satisfy (currently all these commodities are imported in the Adriatic- Ionian macro-region). It has been generally found that up to 50% fishmeal protein can be replaced by plant proteins in carnivorous fish diets without any negative effects on growth or fish welfare issues. Plant proteins are the most common replacements for fishmeal in aquafeeds and this could trigger synergies between agriculture and aquaculture in the AI region.

They are cost-effective and are often preferred because of the negative consumer perception around the use of terrestrial animal by-products for feeding fish. However, even when aquafeeds high in plant protein (> 50%) are formulated to provide the required balance of amino acids and other essential nutrients (e.g. fatty acids, macro and trace metals), the growth performance obtained is inferior to that of fish fed fishmeal-based diets. These shortcomings are often the result of plant proteins possessing anti-nutritional factors (e.g. phytate, saponins, phytosterols, lectins) and indigestible carbohydrates, as well as less efficient protein digestion and amino acid absorption. It has also been shown that different dietary protein sources alter fish gut microbiota, and such changes have, at times, been linked to subsequent deterioration in health, immunity and growth.

**Relevance with Pillar Flagship(s):** Technology: Methodological and technical issues related to farming. Nutrition, is of high priority and exchange of information is vital (F2: Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits)

**Potential stakeholders:** Universities, Research centres, Public bodies, Companies, Aquaculture organisations



**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), National/Regional Operational programmes or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

**Other information:** The project idea was presented in the Focus Group on Aquaculture by Dr. Yannis Kotzamanis, Hellenic Centre for Marine Research, Greece.

### 5.6.3. Maritime and Marine Governance and Services

#### *Novel devices to prevent marine litter to enter in the sea and ways to process marine litter*

**Brief description:** It is widely acknowledged that the presence and accumulation of plastic debris is a major environmental problem that has steadily increased with global production in the past fifty years. Between 5 and 12,5 million tonnes of plastic enters the ocean as marine debris from mismanaged waste at coasts alone. There is a need to keep plastic and its value in the economy and out of the oceans.

Plastics enter the ocean from numerous land-based and marine sources such as, unprotected waste disposal sites, touristic and recreational industry, harbors, merchant ships, draining sewage outlets and rivers. Microplastics (plastic particles <5mm in size), originating from the decomposition of larger particles and also from a variety of substances, such as personal care products enter the ocean mainly from wastewater treatment plants (WWTPs). Once deposited in the ocean, plastic debris are carried by currents, while macroplastics are also affected by wind and waves, depending on their buoyancy and windage properties.

Marine litter pollution is a complex and multi-dimensional environmental issue that involves human activities (industry, urban waste, tourism, maritime traffic), being its main source, as well as physical processes (ocean currents, waves, wind) that control the fate of litter in the marine environment. Its mitigation requires knowledge on sources and fate of marine litter, as well as the development of cost efficient methods and policies for its reduction. The H2020 CLAIM project, coordinated by HCMR, developed practical tools for a step change towards the mitigation and efficient ecosystem management of marine litter pollution in the Mediterranean and Baltic Sea. CLAIM developed and demonstrate innovative technologies and modelling tools, suitable for removing visible and invisible litter at their point of introduction to the

marine environment (e.g. river estuaries and waste water treatment plants) before they enter into the sea and to map their fate once they enter into the sea. **These novel tools are now available for further application at the main entry points of plastics in the marine environment of the Adriatic- Ionian macro-region.**

The proposed approaches are characterised by low cost and small scale, having the potential to be adopted by coastal public authorities that have rivers in their territory and wastewater treatment plants. CLAIM's focus on small scale and cost effective solutions of little initial investment aims to make easier social acceptance and adoption.

The **CLEAN TRASH** system (CLAIM's **Litter Entrapping Autonomous Network Tactical Recovery Accumulation System Hellas**), is an unparalleled and highly efficient solution to manually manage and remove marine litter from river estuaries before the litter can enter into a larger body of water, where the litter causes negative effects on the marine environments and where plastics break into micro and macro-plastics dramatically affecting marine life and marine ecosystems. The CLEAN TRASH system can withhold 95 - 97% of litter in rivers and torrents above 5 mm as it allows intentionally some exit points at the bottom and at the side to facilitate free navigation and fish and marine life movements. The minimum size of the litter that can be withheld from the litter collection system is appx 5mm – this is defined by the diameter of the metal sieve of the cage which is 5mm. The collected litter can then be treated in a **pyroliser** where the solid plastic waste can be transformed into a combustible gas that can be used immediately on-site as an energy source for ships and lighting and heating in ports. This technology, suitable for marine litter that cannot be recycled due to contamination and multi-material composition (biofouling), can work in parallel with the CLEAN TRASH system.

For use in WWTPs, a low cost, **automated and self-cleaning filtering system** of microplastic litter is installed before a **photocatalytic nanocoating device** in order to supply it with accumulated liquid litter of appropriate size to enhance the efficiency of the photocatalytic device, by blocking the bigger plastic particles that would need more time to be dissolved.

In addition, **advanced 3D modelling tools** monitor the fate and forecast the distribution of marine plastic litter pollution, both micro- and macroplastics, in the sea with the aim to provide a better understanding of the impacts of human activities on ecosystem services. These tools can be downscaled to 50 meters to better evaluate the impact of CLAIM's cleaning methods in the marine environment in selected areas of the Adriatic - Ionian macro-region.

By identifying and mapping potentially threatened ecosystems, the project will pay particular attention to the ecosystem services on which commercial fisheries and aquaculture rely.

**Significance of the project:** Marine ingredients such as fishmeal and fish oil from wild-caught fish and trimmings have been the main protein and lipid sources for cultured fish during the last decade.

**Relevance with Pillar Flagship(s):** Trans-regional cooperation between community-led local development (CLLD) strategies for actions to combat marine litter pollution. (F3: Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and blue growth services)

**Potential stakeholders:** Universities, Research centres, CLLDs, Companies, Public Authorities, Aquaculture and fisheries organisations.

**Indicative budget, potential financial resources:** European Regional Development Fund (ERDF Policy Objective 2), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), EU directly managed programmes (LIFE+), or European Maritime, Fisheries and Aquaculture Fund (EMFAF).

**Other information:** The project idea was presented in the Focus Group on Aquaculture by Dr. George Triantafyllou, Hellenic Centre for Marine Research, Greece.

### ***Innovation Lab for insular Blue Growth***

**Brief Description:** In the context of linking the academia with local communities and business and policy makers it is proposed the establishment of blue innovation labs in the islands' regions with the objective of:

- Generating new knowledge on Blue Economy sectors through research & development for collecting and monitoring critical (keY) data, for fostering cycling economy and combating climate change by quadruple and quintuple innovation helix framework. The involvement of local communities through citizens' science techniques and the market players through platforms are critical parameters for creating the necessary links between the range of stakeholders while the lab can act as the interlinkage node and a “mirror” for dissemination.
- Cultivating blue skills through using innovative educational and training tools, combining contemporary academic knowledge and field research findings and living labs
- Promoting blue entrepreneurship through hard skills curricula, research simulations, incubating accelerating and coaching and microfinancing

- Enhancing local insular identity through preserving heritage and traditions involving local communities.

**Significance of the project:** The challenging economic conditions in combination with the new environmental priorities generate a more complex context both for the existing and future generations of manpower as well as for entrepreneurs. The spatial dimension is also a catalyst of the emerging sustainable model of development. To this extend the islands face the new era with different priorities than the past. Nowadays is of paramount importance to empower the innovation capacity of very small enterprises, maritime clusters/networks or local Authorities so to boost blue and Cyclical growth in the islands by transferring knowledge and research from the Universities for implementation or even testing the new ideas/services or projects.

The employees in blue economy sectors require apart from the knowledge to obtain skills that will allow them to develop their career path. At the same time, new entrepreneurial models should be compatible with the principles of sustainable development and produce solutions and value both for the environment and the local communities. Since the complexity of the business environment increases, contemporary entrepreneurs should have multidiscipline background to address modern challenges. To that extend, new educational and training schemes and initiatives are necessary to provide in an integrated manner new educational needs. The cultivation of skills and the provision of conventional knowledge combined with scientific research generates an innovative educational mechanism. Furthermore, the involvement of local societies to research through structured processes and tools leads not only to raise public's awareness on blue growth content and context, but also to transform them into a significant axis for the successful implementation of relevant legislation, while become source for new ideas, services and products.

**Relevance with Pillar Flagship(s):** Creation of start-ups and local employment and promotion of partnership working, improve the levels of skills and expertise for the working manpower in maritime sector (F3: Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and blue growth services)

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies.

**Potential financial resources:** European Regional Development Fund (ERDF Policy Objective 1), Instrument for Pre-accession Assistance (IPA III) under Cross Border Cooperation and Transnational programmes (INTERREG), National/Regional Operational programmes of the EU member countries. Potential complementarity of the RIS Strategies of the EU member countries of the EUSAIR.

### ***Development of a shared data system at sea basin level***

**Brief description:** The project idea focuses on the development of a more comprehensive and user-friendly share data system at sea basin level. This combines and utilizes existing scattered data sources and further integrating them through enriching by remote sensors or collectors. Significant data providers can be the citizens and thus pilots of crowdsourced procedures are suggested.

**Significance of the project:** The existence of user-friendly data bases will support the process of policy making and facilitate decision-making based on concrete and transparent data. Furthermore, shared data will generate the conditions for benchmarking among the different policy approaches and thus best practices can be emerged and applied in macro-regional level.

**Relevance with Pillar Flagship(s):** Governance of maritime space for a sustainable and transparent use of maritime and marine resources (F3: Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and blue growth services)

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies

**Potential financial resources:** European Regional Development Fund under Cross Border Cooperation and Transnational programmes (INTERREG), EU directly managed calls, European Maritime, Fisheries and Aquaculture Fund (EMFAF).

### ***Development of a common framework for implementing circular economy projects in blue growth sectors***

**Brief description:** General idea includes the development of a common framework, for the EUSAIR countries, that provides the context as well as the content to enable circular culture in regional economies and transform the value chain so as to produce environmental sustainability, social equity and economic prosperity. This includes the determination of intervention areas', analysis of each blue sector supply chain and the optimization process required for re-engineering manufacturing procedures in way so as to reflect waste hierarchy. In addition, core component is the engagement of local populations through appropriate education, training activities and participatory processes.

**Significance of the project:** The various industries (especially those related to maritime activities like shipbuilding or even yachting) use raw materials in their production process, which after being consumed are discarded to the environment,

affecting the quality of natural resources while the industrial process itself generates additional wastes. The process is not only burdening the environment but is economically inefficient. Shifting production mindset and adopting a circular approach can be expected to save resources, improve environmental state through the reuse/recycled process and create new forms of sustainable entrepreneurship compatible with the principles of Sustainable Development Goals.

**Relevance with Pillar Flagship(s):** Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions (F3: Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and Blue Growth services)

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies

**Potential financial resources:** European Regional Development Fund under Cross Border Collaboration and Transnational programmes (INTERREG), Directly Managed calls of European Fisheries and Aquaculture Fund (EMFAF).

#### *Common guidelines and tools for climate adaptation and SDGs*

**Brief description:** Project idea focuses on the development of appropriate guidelines addressed to policy makers, predominately in regional level, for improving their knowledge and capacity in assessing the vulnerability of their coasts and seas, the risks as well as their adaptive capacity. To that extend, within the context of a project appraisal tools, consultation mechanisms and guidelines for climate plans may be developed, utilizing the experience, expertise and availability of data also from previous projects. In parallel, such guidelines may also be combined so as to integrate the principles and objectives of Sustainable Development Goals.

**Significance of the project:** Climate change is a significant threat especially for coastal regions or islands and as such the ability of local governments to intergrade into their local plans the climate considerations stands critical for the resilience of their economic, social and environmental status. To that extend, it is important local policy makers to have the knowledge and the capacity to address this kind of challenges and risks and design plans that effectively increase their present and future preparedness. The development of guidelines will cultivate or/and increase local communities adaptation capabilities and capacities adjusted to the special characteristics and priorities of each regions.

**Relevance with Pillar Flagship(s):** Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions

(F3: Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and blue growth services)

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies

**Potential financial resources:** European Regional Development Fund under Cross Border Collaboration and Transnational programmes (INTERREG), Directly Managed calls of European Fisheries and Aquaculture Fund (EMFAF).

### **Maritime surveillance**

**Brief description:** Maritime surveillance project can be developed in three pillars: (a) develop reasonable maritime (environmental and traffic) surveillance/monitoring capabilities based on technologies like drones and satellites but also mobile applications (engaging general public) (b) Harmonization of relevant protocols and identification of opportunities for legislation update (c) Increase societal awareness and engagement

**Significance of the project:** Focus on maritime surveillance is critical for the region as it is linked with a range of economic activities such as shipping, fishing etc. The use of advanced technologies to monitor the sea area can contribute to the obtaining of data about sea resources and economic activities, which in turn can be used as input for the better surveillance of the region, decision-making and the implementation of legislation on spatial planning and governance.

**Relevance with Pillar Flagship(s):** Governance of maritime space for a sustainable transparent use of maritime and marine resources

**Potential stakeholders:** Universities, Research centres, Public Authorities, Companies

**Potential financial resources:** European Regional Development Fund under Cross Border Cooperation and Transnational programmes (INTERREG), EU directly managed calls, European Maritime, Fisheries and Aquaculture Fund (EMFAF).

## **5.7. ROADMAP**

This section presents the necessary actions to be taken by the relevant authorities as regards: i) Embedding the EUSAIR priorities and Flagships in the 2021-2027

programmes, ii) Supporting the project generation process by the Thematic Steering Group “Blue Growth”, and iii) Visibility of the Ideal EUSAIR outcomes.

### 5.7.1. Embedding EUSAIR priorities and flagships in the 2021-2027 programmes

Paragraph 6 of the Catania Declaration called on the national and regional authorities responsible for the ESI and IPA funds in the participating countries to “*closely coordinate among them across the Region, since the very early stages of 2021-2027 strategic planning, so as to jointly agree on the macro-regional priorities to be included in the ESIF Partnership Agreements and IPA Strategy Papers and, subsequently, in the ensuing, relevant programming documents*”. That same paragraph also urges “*the ESIF and IPA programme authorities and EUSAIR key implementers to jointly work to identify at the earliest convenience pilot macro-regional actions and projects which require, for their implementation, coordinated planning and programming of national/regional ESI and IPA funds across the Region*”.

The proposal by the COM for a new CPR, ERDF regulations as well as regulation(s) relevant for IPA III and its implementing regulation recognises the necessity to include macro-regional priorities - jointly agreed by the countries - in the ESIF and IPA 2021-2027 planning and programming documents from the very beginning, and to identify a few pilot/emblematic projects (flagships) with macro-regional relevance<sup>53</sup>. In particular, according to CPR Article 17 (3) each programme shall set out a summary of **main challenges** referring specific provisions for the **macro-regional strategies** in which the country participates. Reference at the level of **each Specific Objective** should include:

- Related types of action and expected contribution to those Specific Objectives and to macro-regional Strategy, where appropriate
- The interregional and transnational actions with beneficiaries located in at least one other member state.

The EUSAIR GB following the TSGs’ proposals agreed on priorities and a few Flagships per Pillar (June 2020).

#### The embedding process

ESIF and IPA III programmes of the countries located in the Adriatic-Ionian region must ensure that they contribute actions and projects arising from the macro-regional Strategies (e.g. EUSAIR Flagships).

National Coordinators in their countries closely consult with the planning authorities for embedding priorities and Flagships in the relevant documents. Embedding refers both to

---

<sup>53</sup> Ioannis Firbas, Overview of the process - From Catania Declaration to the Flagships, presentation in the webinar “Programmes meet EUSAIR”, 15 April 2021.



mainstream programmes and ETC programmes, as well as to the IPA III programming documents.

The whole exercise must be considered and implemented as a dynamic process and will continue, in a coordinated yet flexible way, till the final drafting and submission of the relevant PAs and IPA programming framework to the COM.

Regarding the **embedding in the design process** the following steps should be considered:

**Step 1:** Inclusion of **Flagships** to the National Partnership Agreements. This step is not easy as the template does not provide for this.

**Step 2:** Inclusion of priorities and **Flagships**

- to Regional Programmes
- to Sectoral Programmes
- to Interreg Programmes

This step assumes that all the MAs are **aware of the relevance of EUSAIR** priorities and Flagships and help all the different levels and stakeholders to start thinking in a transnational dimension.

**Step 3:** In each programme under Priority Axis X and Specific Objective Y **specific measures/actions should be defined and linked to the EUSAIR Flagships**. Flagships should be considered according to their national, cross-border and transnational dimensions.

**Step 4:** Identify an **EUSAIR contact person in each MA**. This can also help in smoothing the process to support the single MAs in programme drafting and implementation.

Specifying **the above design process** for the Flagships of the first EUSAIR Pillar and as in more details presented in the study, EUSAIR Pillar 1 “Blue Growth” interventions in the new programming period will be implemented mainly under Policy Objectives 1, 2, 4 and 5. As the current programming period brings away, the ESIF are going to play an important role in funding the Blue Growth interventions under the EUSAIR Pillar 1. The first Specific Objective of the new Cohesion Policy provides the framework for funding projects in the topic of Blue Technologies, while under the CBC and Transnational programmes macro-regional projects can be approved serving the EUSAIR priorities in this specific topic. More specifically:

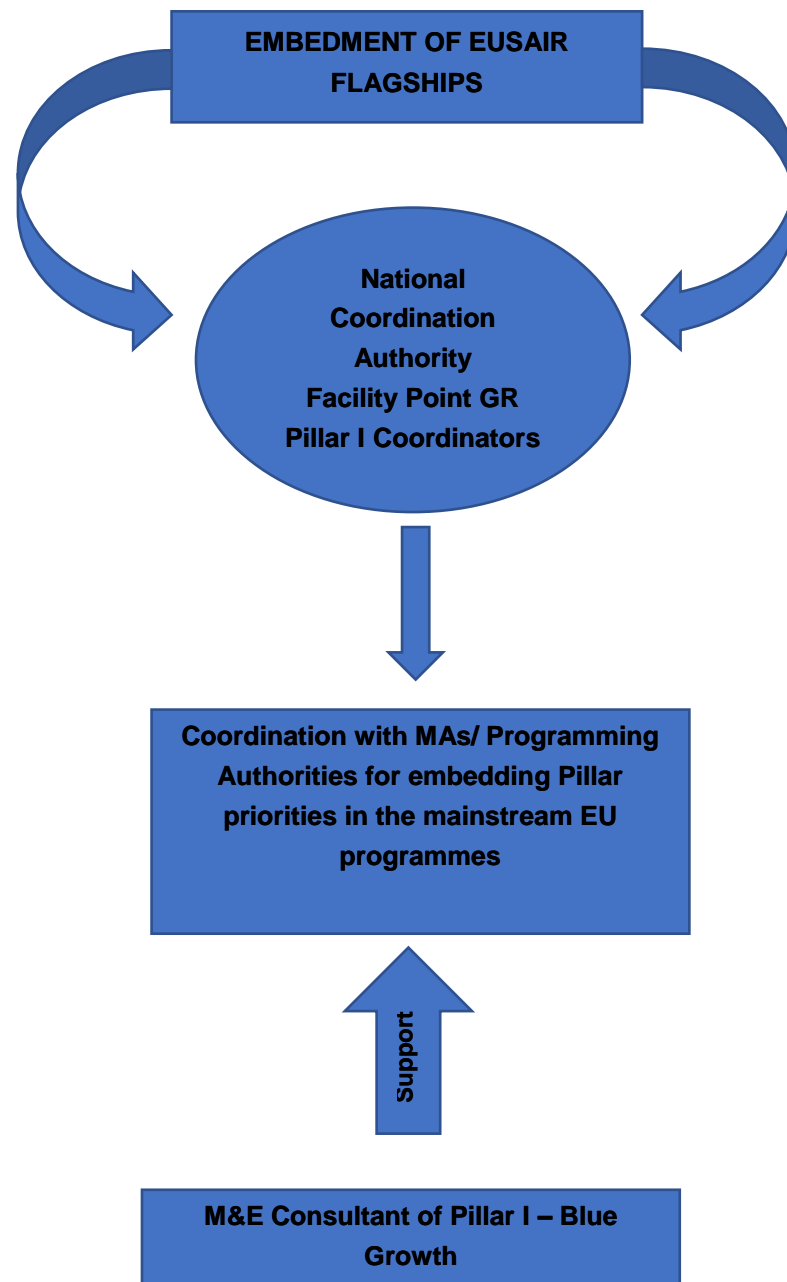
1. Interventions related to the topic of **Blue Technologies** could be financed mainly under PO 1. In the programming period 2021-2027 eligibility and possible funding sources for the Blue Technologies sector are as follows;
  - ✓ INTERREG
  - ✓ EMFAF
  - ✓ Coordination with national and regional RDI programmes of ERASMUS+ and RIS3
  - ✓ ERDF
  - ✓ COSME
  - ✓ Horizon Europe

The Managing Authorities could examine the relevance of the topic interventions with the regional Smart Specialisation Strategies (and/or the National Strategy) and consequently the possibility of funding projects relevant to the specific Flagship. In addition, the INTERREG programmes are expected to contribute significantly to the specific topic flagships in the new period, as shown by the experience for the programming period 2014-2020. The various projects implemented under CBC and Transnational programmes (Blue Technologies clusters and networks, participation of SMEs in schemes for funding the development of innovation, etc). The national operational programmes could also investigate the possibility of funding relevant projects. For example, the OP Competitiveness, Entrepreneurship and Innovation 2014-2020 of Greece, included specific calls on basic research in the sectors of Aquaculture and Fisheries, which attracted research institutes and enterprises and could be considered relevant to the first and second topics of Pillar 1.

2. The Flagships of the **Fisheries and Aquaculture** will be covered mainly by the operational programmes of Maritime and Fisheries of the new programming period. The CBC and Transnational programmes have also to play a role in for the implementation of relevant interventions, as resulted from the programming period 2014-2020. For example, the INTERREG Greece-Albania programme has to demonstrate specific projects relevant to this topic, while other CBC programmes (e.g. INTERREG ADRION programme) included projects combining the Pillar priorities of Blue Technologies and Fisheries and Aquaculture).
3. The third topic of **Maritime and Marine Governance** illustrates more difficulties in being embedded to the operational programmes, as it combines various fields of different nature. However, the embedment is possible regarding a wide range of the topic priorities. For example, in the programming period 2014-2020 Italy's regions of the EUSAIR area implemented specific projects on Blue Skills (funded by the ESF), while the EMFAF provides the opportunity of funding projects related to Maritime Spatial Planning. Programmes under the goal of Territorial Cooperation may also contribute to the respective priorities. In the programming period 2021-2027, eligibility and possible funding sources for projects relevant to the Maritime and Marine Governance and Services are as follows;

- ✓ INTERREG
- ✓ EMFF (CLLD- Community Led Local Development Strategies)
- ✓ ERDF
- ✓ ESF

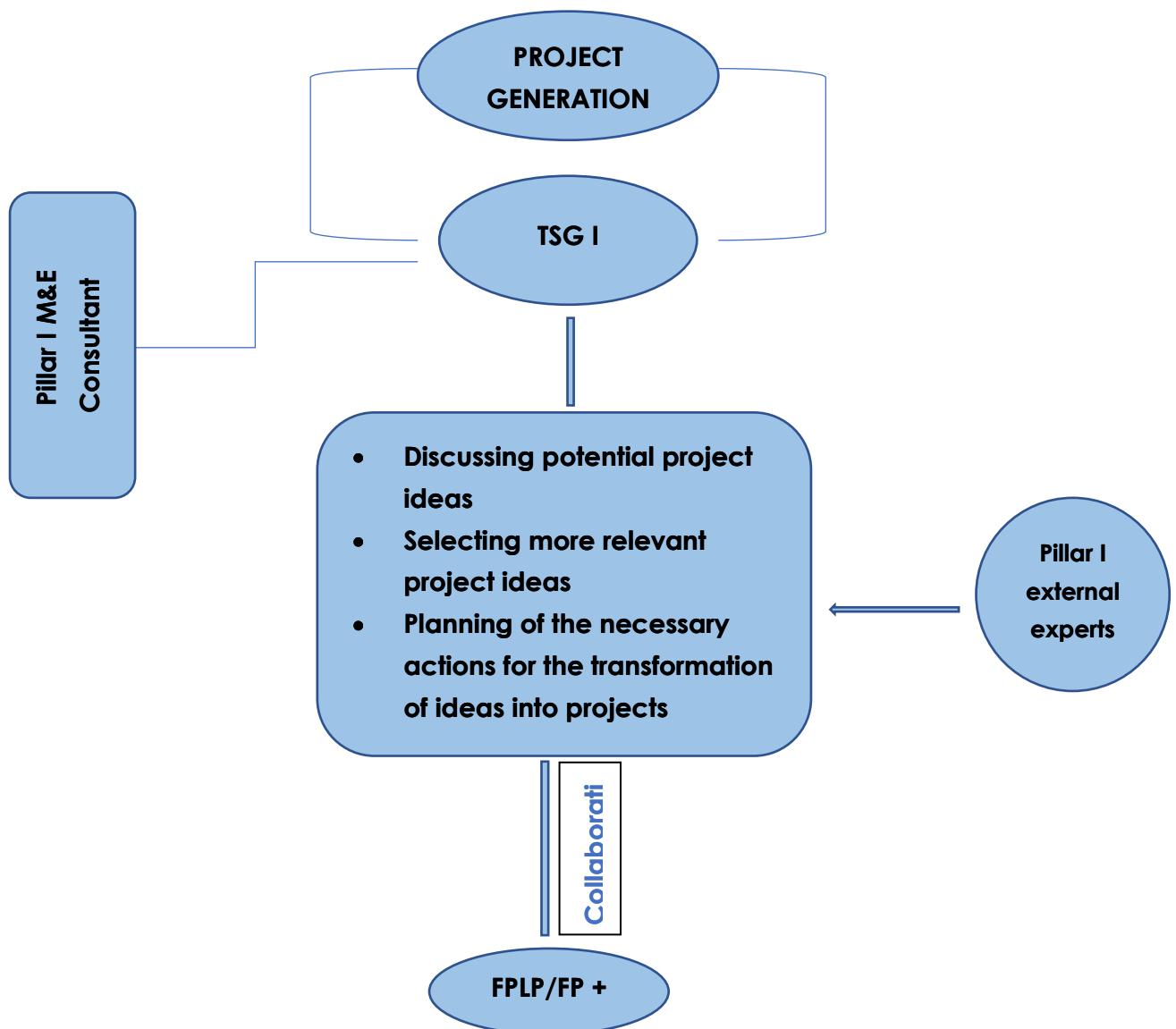
The completion of the Ideal EUSAIR study coincides with the acceleration of the new programmes' design. The Pillar 1 M&E Consultant is going to support the EUSAIR Facility Point Greek Partner and the National Coordination Authority of Greece for the better preparation of the Managing Authorities regarding the embedment of the EUSAIR priorities and Flagships in the new programmes. The Consultant is going to participate in meetings and other events to be organised by the NCA regarding the information of the Managing Authorities, whenever this is required, contributing to the fulfillment of the regulation requirements regarding the embedment of the MRS to the 2021-2027 programmes.



### 5.7.2. Supporting the project generation process by the Thematic Steering Group “Blue Growth”

The Ideal EUSAIR study was designed primarily aiming at the support of the TSG to generate and prepare project ideas to be implemented in the programming period 2021-2027. The study proposes 30 potential project ideas that could be transformed into projects to be submitted under the operational programmes of the new period.

The Pillar 1 Monitoring and Evaluation Consultant is going to present the study after its final approval by the contracting authority (Ministry of Development and Investments, EYSSA) to the Pillar Coordinators and the TSG members (the latest if required).



The TSG 1 will have the opportunity to discuss on the specific project ideas and decide which of them are more relevant with the Pillar priorities. Undertaking the necessary actions for increasing the maturity of the projects could be based:

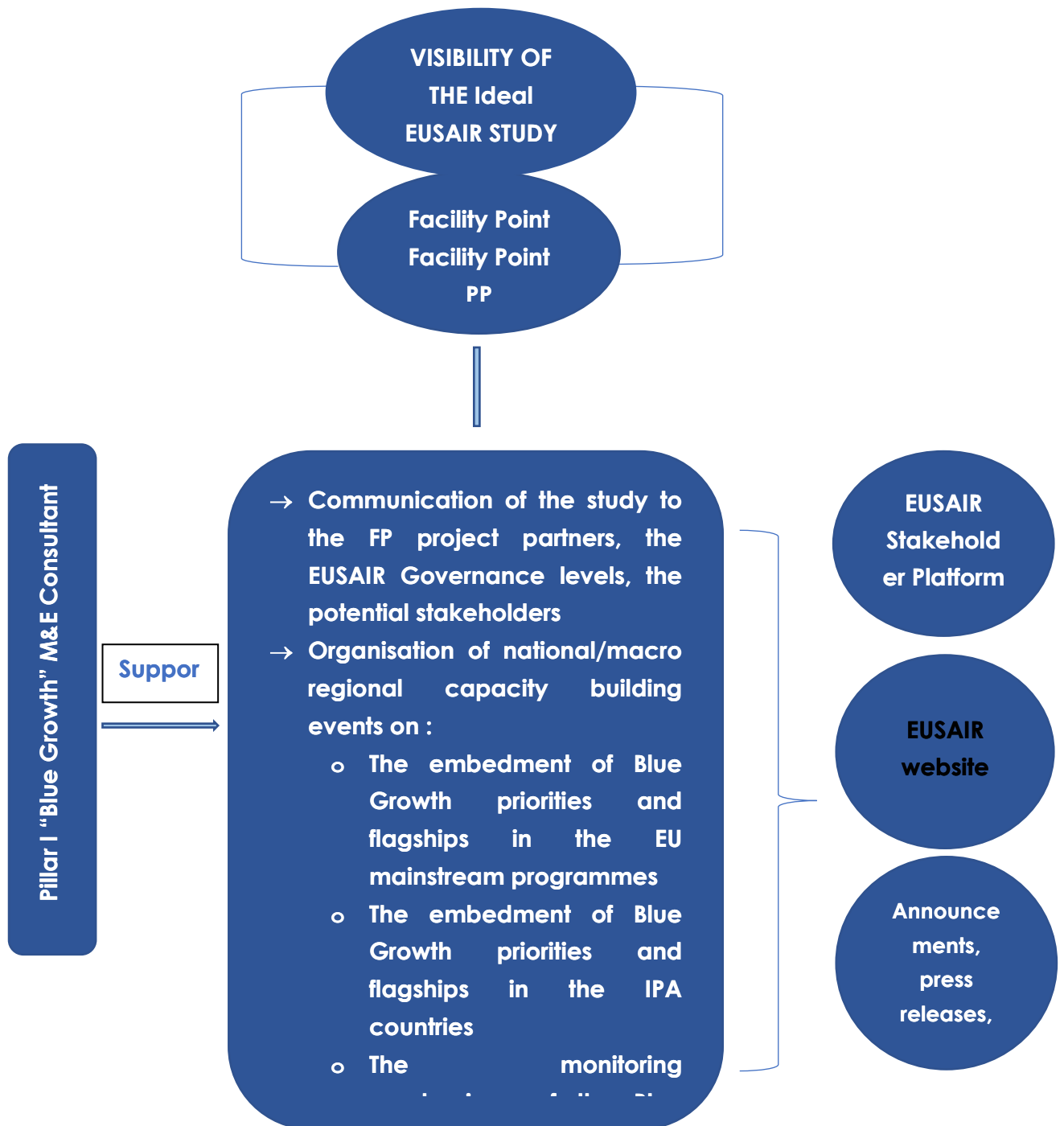
- On the established process of the EUSAIR Pillars (e.g. forwarding proposed project ideas to the Facility Point Plus for further elaboration and maturation).
- On short studies required for investigating specific dimensions of the project ideas (e.g. potential actions, stakeholders, financial possibilities, preparation of terms of reference, etc).
- On the contribution of the external expert hired by the Facility Point Greek Partner in order to support the preparation of Pillar 1 projects.

The Pillar 1 M&E Consultant is going to assist the project generation process by presenting the potential project ideas to the TSG members and collaborating with the Pillar 1 external experts whenever required.

### **5.7.3. Contributing to the visibility of the Ideal EUSAIR outcomes**

The approval of the Ideal EUSAIR study completes a package of services which is now available to EUSAIR TSG 1, supporting the launch of the programming period 2021-2027. The Pillar 1 Knowledge Base, the proposed Monitoring System and the respective monitoring Indicators and the Ideal EUSAIR study comprise a set of tools permitting the design and the implementation of the Pillar 1 strategy in the new period.

The completion of the relevant tasks from the other EUSAIR Pillars (which is still in progress) would undoubtedly contribute to the Strategy implementation and the maximization of its results in the new programming period.



The Pillar 1 M&E Consultant is in collaboration with the Facility Point Greek Partner in order to support all of the required actions towards increasing the visibility of the Ideal EUSAIR results and the other tools developed by the Consultant, encouraging the acceleration of the other Pillars' similar tasks. Those actions would include:

- The wide communication of the study through the EUSAIR Stakeholder Platform, the EUSAIR website, other relevant websites, etc.
- The organisation of capacity building events at national and macro-regional level, with the participation of the Pillar 1 M&E Consultant, aiming at the dissemination of the EUSAIR results, the improving of the programmes' design process, as well as the introduction of the EUSAIR monitoring mechanisms and tools.
- The preparation of leaflets, newsletters and other informative material for delivery to the Managing Authorities and other EUSAIR stakeholders.



## 6. IDEAL EUSAIR STUDY: CONCLUSIONS & RECOMMENDATIONS

The IDEAL EUSAIR study aims at facilitating and fostering the design and implementation of EUSAIR Flagship actions and projects in the macro-region in the programming period 2021-2027. The survey organised by the project team, based on an extensive mapping on the Blue Growth-related stakeholders in the EUSAIR countries, as well as the four Focus Groups on the Pillar 1 “Blue Growth” topics, allow a deep consideration of the current situation of the macro-region regarding the specific fields and leads to conclusions regarding specific policy recommendations, prioritized policy areas and indicative project ideas that could be a basis for project generation in the new programming period. The study elaborated the existing SWOT Analysis of the macro-region regarding the three Pillar 1 topics, verifying its validity and focusing on special points which attracted the interest of the participants both in the survey and the Focus Groups.

### PROPOSED PRIORITIES AND AREAS FOR FUTURE PROJECT DEVELOPMENT

According to the survey results, the main **priorities** for the **Blue Technologies** sector, in the programming period 2021-2027, are the facilitation of an easier *access to finance and promotion of the creation of start-ups*, and the *increase of networking between researchers, SMEs and clusters*.

The vast majority of the participants in the survey stressed that the **main areas for project implementation** in the sector must be *the development of novel eco-friendly products that serve circular economy, the development of educational and training programs* to support the development of skilled human capital on Blue Technologies, *the promotion of blue skills, the reinforcement of networking, knowledge sharing & creation of databanks, the development of a “cloud environment”*, for facilitating the matching between researchers and institutes and companies, and for setting up a scheme for supporting researcher mobility and *the development of innovative eco-friendly solutions for electricity generation from the sea waves, currents, thermal energy of the sea, wind*, etc. for coastal and island regions.

The **Fisheries sector** must focus on the **priority** of *better management and sustainable exploitation of fish stocks along with compliance & implementation of measures to combat IUU practices*, while the *Utilization of Unwanted and Unavoidable catches and discards* is, also, considered an important priority. The replies of the survey revealed that *combining fisheries with tourism activities* is important, whereas the combination of fisheries with tourism activities and the valorization of Unwanted and Unavoidable catches and discards ranked lower as suggested priorities for the sector.

The *development of a strategy for small scale fisheries* is considered an important **area for project implementation** by the total of the participants in the survey. *Actions to improve traceability, certification, harmonization of legislation and plans to improve professional skills of fishermen. Development of fishtourism and ichthyotourism (diversification activities)* are also considered important areas for project development in the Fisheries sector.

Accordingly, **important priorities** for the **Aquaculture sector** are *the creation of new jobs, the improvement of the environmental footprint of aquaculture and the compliance of the non-EU countries with EU Acquis, and the harmonization of aquaculture standards* follows. The survey underlines as important **project implementation areas** *the actions to improve the quality of the final product and the traceability, the harmonization of legislation, the actions to promote the industry and improve of the image of aquaculture products and the actions to improve skills for the aquaculture sector.*

The main **priorities** for **Maritime and Marine Governance and Services** include *enabling the sustainable Blue Growth development of coastal and island communities, improvement of the governance of maritime space and creation of appropriate tools and services to improve the management capacity of competent authorities, strengthening networks establishment of academics, training organizations and professional organizations of maritime sectors in macroregional level and improvement of skills and career development in blue economy.*

Based on the participants' opinions the main **project implementation areas** identified are *the development of climate change adaptation plans for coastal and island regions, the development of circular economy projects to ports and coastal and island regions, the improvement and clarification of the legal framework for Marine Protected Areas (MPAs) and the implementation of the new Directive on Maritime Spatial Planning.*

## **KEY POLICY RECOMMENDATIONS**

The survey results, the discussions that have taken place in the focus groups, allow drafting brief **key policy recommendations**, which could be used in order to provide guidance to Managing Authorities and other bodies involved in the programming of the programming period 2021-2027. Those recommendations summarize the main directions for the approval, under the new programmes, of projects relevant to the EUSAIR priorities. In addition, they include a list of indicative projects, or groups of projects which could be compatible with the EUSAIR objectives for each one of the Pillar 1 priorities approved as Flagships and Actions by the EUSAIR Governing Board.

For the sector of **Blue Technologies** in the programming period 2021-2027 interventions related to the strengthening of quadruple helix ties in the fields of marine technologies and blue bio-technologies can be financed, aiming at:

- Advancing innovation, business development and business adaptation in blue bio-economy
- Facilitating the “brain circulation” between universities, institutes and companies (as a precondition for the development of macro-regional cooperation in the field of blue technologies)
- Strengthening networking and creating macro-regional clusters especially quadruple helix, while encouraging the internationalization of small and medium-sized enterprises (SMEs).

In order to boost Blue Technologies in the AI macro-region, research and development (R&D), and innovation platforms in areas such as green sea mobility, deep sea resources (including the development of unmanned marine vehicles) biosecurity and blue bio-technologies will be developed.

Priorities must also be adopted for easier access to finance and promotion of the creation of start-ups and spin offs for the development and testing of prototypes or ideas as well as for the exploitation of scientific results. The prioritization and adoption of Blue Technologies by SMEs, the development of skilled human capital and knowledge transfer are promoted as key factors for innovation and sustainable Blue Growth.

The study identifies projects/groups of projects under the proposed actions of the first Flagship of Pillar 1 (F1: Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy).

The **Fisheries sector**, in the new programming period, has to deal with the macro-regional challenge of better cooperation across the Adriatic-Ionian Sea basin, which should trigger a virtuous process of increasing the competitiveness of the coastal communities. Strategic goals to be served are:

- Creation of new jobs, the harmonization of standards as well as the compliance of non-EU countries with EU Acquis are of strategic importance.
- Combining fisheries with tourism activities (Pillar 4) should be exploited and further developed.

Overall, the projects to be implemented aim at strengthening fisheries in the macro-region through:

- Better management and sustainable exploitation of fish stocks.
- Improvement of data collection and fish stock assessment.
- Improved fisheries management & harmonization with EU regulations & international organizations.
- Compliance & implementation of measures to combat illegal, unreported, unregulated fisheries and elimination of destructive fishing practices.
- Utilization of Unwanted and Unavoidable catches and discards.
- Plans to improve professional skills of fishermen.

The study identifies projects/groups of projects under the proposed actions of the second Flagship of Pillar 1 (F2: Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits- Fisheries).

For the **Aquaculture sector**, the better cooperation across the Adriatic-Ionian Sea basin should trigger a virtuous process of increasing the competitiveness of the coastal communities. The strategic goal for Aquaculture is the creation of new jobs, while the harmonization of standards as well as the compliance of non-EU countries with EU Acquis are also of strategic importance. Overall, the projects proposed aim at strengthening the aquaculture sector in the macro-region through:

- Improvement of Administration (including data collection), Technology, Marketing and Trade.
- Compliance & implementation of measures for sustainable and resource efficient aquaculture with improved environmental footprint.
- Utilization of Unwanted and Unavoidable catches and discards.
- Plans to improve professional skills of employees in the aquaculture sector.

The study identifies projects/groups of projects under the proposed actions of the second Flagship of Pillar 1 (F2: Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions including the promotion of initiatives on marketing standards and healthy nutritional habits - Aquaculture).

Regarding the **Maritime and Marine Governance and Services**, the EUSAIR priorities can be served through:

- The development of appropriate and operational transnational cooperation networks to improve the sustainable management of coastal and insular areas,
- The creation of databases for effective policy-making and the implementation of the Maritime Spatial Planning Directive) as well as the Maritime Strategy Framework Directive,
- The creation of programmes for the cultivation of the necessary skills
- The improvement of career prospects in the fields of the Blue Economy, with particular emphasis on the maritime profession.

Interventions could be adopted supporting the improvement of the management capacity of the bodies designing and implementing THF projects, the establishment of a monitoring system to support local bodies through the development of appropriate indicators, tools and consultation mechanisms, as well as the formulation of education and training programs for blue jobs.

The study identifies projects/groups of projects under the proposed actions of the third Flagship of Pillar 1 (F3: Bolstering capacity building and efficient coordination of planning

and local development activities for improving marine and maritime governance and Blue Growth services).

## **FUNDING BLUE GROWTH IN THE PROGRAMMING PERIOD 2021-2027**

The **EU Blue Growth Strategy** comprises a dynamically evolved background for the implementation of the EUSAIR Pillar 1, while the Cohesion Policy of 2021-2027 provides the necessary financial framework for funding the macro-regional projects. As in the programming period 2014-2020, the implementation of projects serving the EUSAIR objectives in Blue Growth is going to be financed mainly by the **European Structural and Investment Funds and other EU funding mechanisms**, while the funding mechanisms in **IPA countries** will provide additional support for the implementation of projects engaging all countries members of the EUSAIR and enabling the achievement of macro-regional effects and impacts.

As the new Cohesion Policy is structured on the basis of five Policy Objectives, it covers all fields of interventions of Blue Growth in the Adriatic-Ionian macro-region. EUSAIR Pillar 1 “Blue Growth” interventions in the new programming period will be implemented mainly under Policy Objectives 1, 2,4 and 5. The first Policy Objective of the new Cohesion Policy provides the framework for funding projects in the topic of Blue Technologies, while under the CBC and Transnational programmes macro-regional projects can be approved serving the EUSAIR priorities in this specific topic. The same way projects on Marine and Maritime Governance and Services could be funded from ERDF or even ESF+ (e.g. projects on maritime skills development), approved under regional operational programmes, national operational programmes or programmes under the goal of Territorial Cooperation. As regards ESF+, projects in coastal regions may boost training and education in the marine and maritime sectors.

Furthermore, the 6th generation of Interreg programmes will support cooperation between regions, citizens and economic stakeholders over their respective land and maritime borders. The new legislation will also cover the cooperation between regions at transnational level in the framework of the Macro-regional and Sea basin Strategies: Baltic, **Ionian/Adriatic** and Black seas, Danube and Alps.

Additionally, the new **European Maritime, Fisheries and Aquaculture Fund (EMFAF)** will play an important role in the EUSAIR Pillar 1 implementation, due to its direct relevance with the topic of Fisheries and Aquaculture. The Fund continues to support the European fisheries sector towards more sustainable fishing practices, with a particular focus on supporting small-scale fishermen. It will also help unleash the growth potential of a sustainable Blue Economy towards a more prosperous future for coastal communities. For the first time, in the programming period 2021-2027, it will contribute to strengthening international ocean governance for safer, cleaner, more secure, and sustainably managed seas and oceans. Finally, the Commission is reinforcing the environmental impact of the Fund with a focus on protecting marine ecosystems and an

expected contribution of 30% of its budget to climate change mitigation and adaptation, in line with the commitments agreed under the Paris Agreement.

More European programmes and directly managed by the Commission calls also provide opportunities for funding Blue Growth projects in the AI macro-region in the new period. Among them, **Horizon Europe**, the research and innovation framework programme running in 2021-2027, could provide funding for a wide range of similar interventions. The programme will have a budget of around **€95.5 billion** for 2021-2027 (current prices), representing a 30% increase vis-à-vis the current research and innovation programme. Under the mission area 4 “**Healthy oceans, seas, coastal and inland waters**”, which is closely related to the **EUSAIR Pillar 1 “Blue Growth” and Pillar 3 “Environmental Quality”**, the programme will provide a powerful tool to raise awareness among citizens of the importance of healthy oceans, seas, coastal and inland waters, and help develop solutions on a range of issues. These include systemic solutions for the prevention, reduction, mitigation and removal of marine pollution, including plastics; transition to a circular and Blue Economy; adaption to and mitigation of pollution and climate change in the ocean; sustainable use and management of ocean resources; development of new materials including biodegradable plastic substitutes, new feed and food; urban, coastal and maritime spatial planning; ocean governance and ocean economics applied to maritime activities.

## **PROPOSED PROJECT IDEAS**

The Ideal EUSAIR study identifies a total of **30 potential project ideas**, 17 in the topic of Blue Technologies, 7 in Fisheries and Aquaculture and 6 in Maritime and Marine Governance and Services. Among them two cross-pillar project ideas are presented in the topic of Blue Technologies. Each idea includes a brief presentation of the potential project and its significance, its relevance with the Pillar 1 Flagships as well as the potential stakeholders and sources for funding. All projects presented were discussed in the respective focus groups organised in the framework of the Ideal EUSAIR study. The list of the project ideas comprises a pool of potential Blue Growth projects for the new programming period, providing the TSG 1 the opportunity for project selection according to its priorities and following the essential project production processes.

## **ANNEX**

**ANNEX I**

***Mapping of the relevant stakeholders per topic and country***



## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	University of Tirana	Academia	University	Public	Tirana	Albania	Bio-security, Blue Biotechnology, Biology,	[a] Faculty of Natural Sciences/ Dept. of Biology [b] Faculty of Natural Sciences/ Dept. of Biotechnology	6.2 Environmental monitoring, 2.4 Blue Bio-technologies	<a href="http://www.fshn.edu.al">www.fshn.edu.al</a>
1.2	Polytechnic University of Tirana	Academia	University	Public	Tirana	Albania	Energy technologies, Mineral resources engineering, Energy resources	[a] Faculty of Electrical Engineering/Dept. of Electrical systems of power [b] Faculty of Mechanical engineering/ Dept. of Energy [c] Faculty of Geology and Mining/Depts of Mineral resources engineering/ Energy resources	3.6 (Marine) minerals mining, Energy technologies (not specified),	[a] <a href="http://www.fie.upt.al/">http://www.fie.upt.al/</a> [b] <a href="http://www.fim.edu.al/">http://www.fim.edu.al/</a> [c] <a href="http://dibmin-fgjm.org/">http://dibmin-fgjm.org/</a>
1.3	Agricultural University of Tirana	Academia	University	Public	Tirana	Albania	Ecology, Biotechnology, Bio-security	[a] Department of Aquaculture and Fisheries [b] Faculty of Biotechnology and Food [d] Faculty of Natural Sciences	6.2 Environmental monitoring, 2.4 Blue Bio-technologies	<a href="https://ubt.edu.al/sq/">https://ubt.edu.al/sq/</a>
1.4	University of Vlora "Ismail Qemali"	Academia	University	Public	Vlora	Albania		Faculty of Technical Sciences/ Dept. of Marine Engineering & Technology	0.1 Shipbuilding	<a href="https://univlora.edu.al/en/">https://univlora.edu.al/en/</a>
1.5	Aleksandër Moisiu University of Durrës	Academia	University	Public	Durrës	Albania		(not specified)	3.2 Offshore wind, 3.3 Ocean renewable energy, 2.4 Blue Bio-technologies: (Participation in MISTRAL Interreg Med programme)	<a href="https://www.uamd.edu.al/index.php/en/">https://www.uamd.edu.al/index.php/en/</a>
1.6	Albanian Geological Survey (AGS)	Academia	Research Organisation	Public	Tirana	Albania	Oil and gas exploration, Minerals exploration, Geophysical-engineering investigations, Hydrogeological prospecting, Geophysics for environmental problem.		3.1 Offshore oil & gas, 3.6 (Marine) minerals mining (not specified)	<a href="http://www.qsa.gov.al/index.html">http://www.qsa.gov.al/index.html</a>
1.7	Institute of GeoSciences, Energy, Water and Environment (IGEWE)	Academia	Research Organisation	Public	Tirana	Albania	Climate & Environment, Geology, Water economy	[a] Department of Climate and Environment [b] Department of Geology	[a] RES (not specified if offshore) [b] (Offshore) oil & gas	<a href="https://www.geo.edu.al/newweb/?fq=brenda&amp;qj=q2&amp;kid=1">https://www.geo.edu.al/newweb/?fq=brenda&amp;qj=q2&amp;kid=1</a>
1.8	National Agency of Natural Resources (AKBN)	Government	Public Authority	Public	Tirana	Albania	Supervision of rational use of natural resources, & monitoring of their post-exploitation in mining, petroleum and energy.	[a] Department of Renewable Energy [b] Department of Hydrocarbons	3.3 Ocean renewable energy (Sea water thermal energy-Sea Water Heat Pumps), 3.1 Offshore oil & gas	<a href="http://www.akbn.gov.al">www.akbn.gov.al</a>
1.9	Albanian Centre for Energy Regulation and Conservation (ACERC)	Academia	Think tank centre		Tirana	Albania	Albania energy market, Efficient use of energy resources			<a href="https://albaniaenergy.org/index.html">https://albaniaenergy.org/index.html</a>
1.10	National Agency for Research, Technology and Innovation (NASRI)	Academia	Institution	Public	Tirana	Albania	Evaluate, finance, monitor and manage programs and projects in the fields of science, technology and innovation in Albania			<a href="http://nasri.gov.al/">http://nasri.gov.al/</a>

Mapping - Topic 1

1.11	Orion Albania Limited (Ish Capricorn Albania Limited)	Industry	Company		Tirana	Albania	Exploration activities Offshore oil & gas		3.1 Offshore oil & gas	<a href="http://www.opencorporates.al/sq/nuis/k82020011a">http://www.opencorporates.al/sq/nuis/k82020011a</a>
1.12	Albany Energy Association	Civil society	Association		Tirana	Albania	Energy, Renewable Energy, Hydro Power, Wind Power, BioFuels, Geo-Energy, Biomass & Biogas,		Wind energy, Biomass (not specified if offshore)	<a href="http://www.aea.al">http://www.aea.al</a>
1.13	Institute for Environmental Policy (IEP)	Civil society	NGO		Tirana	Albania	Protection of nature, efficient use of natural resources, maximizing the use of renewable energy, awareness raising and education of the community			<a href="https://iep-al.org/">https://iep-al.org/</a>
1.14	Institute for Nature Conservation in Albania (INCA)	Civil society	NGO		Tirana	Albania	Marine and coastal areas, Fresh water ecosystems, Nature protection & biodiversity, Protected areas & Database			<a href="https://www.inca-al.org/en/about-inca">https://www.inca-al.org/en/about-inca</a>
1.15	Albanian Development Fund (ADF)	Government	Other	Public	Tirana	Albania	ADF is a development agency able to respond challenges and partners' demands in function of	Department of Regional Development (DRD) (Participation in BLUE_BOOST Interreg ADRION programme)		<a href="http://www.albaniandf.org/en/">http://www.albaniandf.org/en/</a>
1.16	REC Albania (Regional Environmental Center)	Civil society	Other		Tirana	Albania	Local initiatives, Biodiversity and rural development, Climate change, RES, Education, Environmental information, Environmental assessment, Innovation and technology transfer			<a href="http://albania.rec.org/">http://albania.rec.org/</a>

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	University of Sarajevo	Academia	University	Public	Sarajevo	Bosnia and Herzegovina	Molecular genetics, Molecular genetics of natural resources, Bio-informatics & Bio-statistics, Electrical engineering, Mechanical engineering,	[a] Institute for Genetic Engineering and Bio-technology (INGEB) [b] Faculty of Science/ Dept. of Biology [c] Faculty of Electrical Eng. [d] Faculty of Transport & Communications [e] Faculty of Mechanical Eng.	2.4 Blue Bio-technologies, 0.1 Shipbuilding (Marine technologies)	[a] <a href="http://www.ingeb.unsa.ba">www.ingeb.unsa.ba</a> [b] <a href="http://www.pmf.unsa.ba/biologija/">http://www.pmf.unsa.ba/biologija/</a> [c] <a href="http://www.etf.unsa.ba">http://www.etf.unsa.ba</a> [d] <a href="http://www.fsk.unsa.ba">http://www.fsk.unsa.ba</a> [e] <a href="http://www.mef.unsa.ba">http://www.mef.unsa.ba</a>
1.2	Geological Survey of Federation of Bosnia and Herzegovina (FZZG )	Academia	Institute	Public	Ilidža	Bosnia and Herzegovina	Mineral resources, Engineering geology, Hydrogeology, (Participation in VAMOS H2020 Programme -Viable and Alternative Mine Operating System)		3.6 Marine minerals mining	<a href="http://www.fzzg.gov.ba/pocetna">http://www.fzzg.gov.ba/pocetna</a>
1.3	Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina	Government	Public Authority	Public	Sarajevo	Bosnia and Herzegovina				<a href="http://www.mvteo.gov.ba/">http://www.mvteo.gov.ba/</a>
1.4	Centre for economic, technological and environmental development (CETEOR) Sarajevo	Industry	Company	Private	Sarajevo	Bosnia and Herzegovina	Energy (energy efficiency, renewable energy sources, energy management, energy related investment analysis, energy audits in the residential and industry sector), Environment (EIA, ESIA, environmental auditing and survey), Measurement (noise			<a href="http://www.ceteor.ba/">http://www.ceteor.ba/</a>
1.5	RTD HEALTH CLUSTER	Academia	Cluster/ Technology Platforms			Bosnia and Herzegovina	Biotechnologies, nanomedicine and usage of ICT in healthcare and pharmacology		2.4 (Blue) Bio-technologies (not specified)	<a href="https://www.clustercollaboration.eu/cluster-organisations/rtd-health-cluster">https://www.clustercollaboration.eu/cluster-organisations/rtd-health-cluster</a>
1.6	REZ Agency – Regional Development Agency for Central BiH Region	Civil society	NGO		Zenica	Bosnia and Herzegovina	Identify needs of municipalities, where prevailing necessity for further capacity building for project development, funds absorption, promotion and business infrastructure development, and Support to development of SMEs through provision of business consultancy services, establishment of business linkages, support to export and investments, as well as promotion.			<a href="https://www.rez.ba/about/">https://www.rez.ba/about/</a>

Mapping - Topic 1

1.7	REC Bosnia & Herzegovina (Regional Environmental Center)	Civil society	Other		Sarajevo	Bosnia and Herzegovina	Participation in the assessment of the current environmental needs of the country and professional support and assistance to environmental protection activities. It supports the international exchange of data relevant to environmental protection and nature conservation; promotes dialogue between countries, organisations and sectors of society; and			<a href="http://bih.rec.org/index-eng.php">http://bih.rec.org/index-eng.php</a>
-----	--	---------------	-------	--	----------	------------------------	---	--	--	---

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	University of West Attica	Academia	University	Public	Athens	Greece	Blue energy applications/Desalination	Department of Mechanical Engineering/Soft Energy Applications and Environmental Protection Laboratory	3.2 Offshore wind, 3.3 Ocean renewable energy (Water Resources Assessment), 3.7 Securing fresh water supply (desalination)	<a href="http://www.sealab.gr/display/Menu/The+Lab">http://www.sealab.gr/display/Menu/The+Lab</a>
1.2	University of the Aegean	Academia	University	Public	Mytilene	Greece	Blue energy technologies/Offshore oil & gas/Green sea mobility/Bio-security/Blue Bio-technologies	[a]Department of Shipping Trade and Transport, Laboratory of Informatics & new technologies in Shipping, Transport & Insular development [b]Department of Environment, Energy Management Laboratory [c]Department of Marine Sciences	0.1 Shipbuilding (Green sea mobility),2.4 Blue bio-technologies,3.2 Offshore wind, 3.3. Ocean renewable energy, 3.1 Offshore oil & gas, 6.2 Environmental monitoring	[a] <a href="https://www.stt.aegean.gr/en/ergastirio-pirotorikis-kai-neon-technologion-sti-naytilia-tis-metafores-kai-tinisiotiki-anaptyxi-epiline/">https://www.stt.aegean.gr/en/ergastirio-pirotorikis-kai-neon-technologion-sti-naytilia-tis-metafores-kai-tinisiotiki-anaptyxi-epiline/</a> [b] <a href="https://www.env.aegean.gr/research/research-laboratories/energy-management-laboratory/">https://www.env.aegean.gr/research/research-laboratories/energy-management-laboratory/</a> [c] <a href="https://www.mar.aegean.gr/index.php?pg=0&amp;lang=en">https://www.mar.aegean.gr/index.php?pg=0&amp;lang=en</a>
1.3	National Technical University of Athens (NTUA)	Academia	University	Public	Athens	Greece	Blue energy technologies/ Green sea mobility-Green shipbuilding/Blue Bio-technologies/(Marine) mining /Offshore oil & gas	[a]School of Naval Architecture and Marine Engineering/Laboratory for Floating Structures and Mooring Systems [b]School of Naval Architecture and Marine Engineering [c]School of Chemical Engineering/Laboratory of Biotechnology (BL) [d] School of Mining & Metallurgical Engineering	0.1 Shipbuilding, 3.1 Offshore oil & gas,3.2 Offshore wind, 3.6 (Marine) mineral mining, 3.3 Ocean renewable energy, 2.4 Blue Bio-technologies	[a] <a href="http://fmsms.naval.ntua.gr/">http://fmsms.naval.ntua.gr/</a> [b] <a href="http://www.naval.ntua.gr/">http://www.naval.ntua.gr/</a> [c] <a href="https://www.chemeng.ntua.gr/labs/biotech/">https://www.chemeng.ntua.gr/labs/biotech/</a> [d] <a href="http://www.metal.ntua.gr/">http://www.metal.ntua.gr/</a>
1.4	Aristotle University of Thessaloniki	Academia	University	Public	Thessaloniki	Greece	Blue energy technologies/Bio-security, Blue Bio-technologies	[a] School of Architecture/ Faculty of Engineering [b] Faculty of Science/School of Biology [c] Faculty of Agriculture, Forestry and Natural Environment/School of Agriculture [d] Faculty of Health sciences, School of Veterinary medicine/Ichthyology Lab.	3.2 Offshore wind, 3.3 Ocean renewable energy, 6.2 Environmental monitoring, 2.4 Blue-Bio-technologies	[a] <a href="https://architecture.web.auth.gr/en/departments-2/">https://architecture.web.auth.gr/en/departments-2/</a> [b] <a href="https://www.auth.gr/en/bio">https://www.auth.gr/en/bio</a> [c] <a href="http://www.agro.auth.gr/en/index.htm">http://www.agro.auth.gr/en/index.htm</a> [d] <a href="https://www.auth.gr/en/vet">https://www.auth.gr/en/vet</a>
1.5	National and Kapodistrian University of Athens	Academia	University	Public	Athens	Greece	(Marine) mining/ Bio-security/ Blue Bio-technologies	[a]Faculty of Geology & Geoenvironment/Department of Economic Geology & Geochemistry/ Lab. Economic Geology and Geochemistry [b] Faculty of Biology/Dept. of Zoology-Marine Biology [c]Faculty of Pharmacy/Department of pharmacognosy & chemistry of natural products	3.6 (Marine) minerals mining, 6.2 Environmental monitoring, 2.4 Blue Bio-technologies	[a] <a href="http://geochem.geol.uoa.gr/index_en.htm">http://geochem.geol.uoa.gr/index_en.htm</a> [b] <a href="http://en.biol.uoa.gr/sections/section-of-zoology-marine-biology.html">http://en.biol.uoa.gr/sections/section-of-zoology-marine-biology.html</a> [c] <a href="https://en.pharm.uoa.gr/the_department/">https://en.pharm.uoa.gr/the_department/</a>
1.6	University of Patras	Academia	University	Public	Patras	Greece	Bio-security/Blue Bio-technologies	[a]Department of Fisheries & Aquaculture Technology, [b] Department of Biology/Division of animal biology	6.2 Environmental monitoring, 2.4 Blue Bio-technologies,	[a] <a href="http://www.tay.teiwest.gr/en/">http://www.tay.teiwest.gr/en/</a> [b] <a href="http://www.biology.upatras.gr/section-animal/">http://www.biology.upatras.gr/section-animal/</a>
1.7	Agricultural University of Athens	Academia	University	Public	Athens	Greece	Blue Bio-technologies	[a] School of Applied Biology & Biotechnology/Department of Biotechnology [b]Faculty of Animal Science & Aquaculture/Department of Applied Hydrobiology	2.4 Blue Bio-technologies, 6.2 Environmental monitoring	[a] <a href="http://inspired.aaa.gr/biotechnology/index_en.html">http://inspired.aaa.gr/biotechnology/index_en.html</a> [b] <a href="http://zp.aaa.gr/en/node/141">http://zp.aaa.gr/en/node/141</a>
1.8	Technical University of Crete	Academia	University	Public	Crete	Greece	Blue Bio-technologies/(Marine) mining/Offshore oil & gas	[a]School of Environmental Engineering/Lab. of Biochemical Engineering & Environmental Biotechnology (B.E.EB) [b]School of Mineral Resources Engineering [c] School of Sciences & Engineering/Department of Biology	2.4 Blue Bio-technologies, 3.6 (Marine) minerlas mining, 3.1 Offshore oil & gas, 6.2 Environmental monitoring	[a] <a href="https://www.beeb.enveng.tuc.gr/index.php?id=5050">https://www.beeb.enveng.tuc.gr/index.php?id=5050</a> [b] <a href="https://www.mred.tuc.gr/index.php?id=3340">https://www.mred.tuc.gr/index.php?id=3340</a> [c] <a href="http://www.biology.uoc.gr/el">http://www.biology.uoc.gr/el</a>
1.9	University of Western Macedonia	Academia	University	Public	Macedonia (Kozani)	Greece	(Marine) mining/Offshore oil & gas	Department of Mineral Resources Engineering	3.6 (Marine) minerls mining, 3.1 Offshore oil & gas	[a] <a href="https://mre.uowm.gr/en/the-department/general-information/">https://mre.uowm.gr/en/the-department/general-information/</a>

Mapping - Topic 1

1.10	International Hellenic University	Academia	University	Public	Thessaloniki	Greece	Offshore oil & gas	Department of Oil Technology	3.1 Offshore oil & gas	<a href="https://www.ihu.gr/tmimata/technologia-petrelaiou">https://www.ihu.gr/tmimata/technologia-petrelaiou</a>
1.11	University of Piraeus	Academia	University	Public	Athens (Piraeus)	Greece	Oceanographic studies. Geochemical studies. Environmental studies. Integrated Coastal Zone Management. Blue Growth.	Laboratory of Oceanography and Marine Geochemistry		<a href="https://maritime-unipi.gr/erevna/erevnikika-ergastiria/ergastirio-okeanografias-ke-thalassias-geochimias/">https://maritime-unipi.gr/erevna/erevnikika-ergastiria/ergastirio-okeanografias-ke-thalassias-geochimias/</a>
1.12	University of Ioannina	Academia	University	Public	Ioannina	Greece	Blue Bio-technologies	Department of Biological Applications & Technology	2.4 Blue Bio-technologies	<a href="http://bat.uoi.gr/">http://bat.uoi.gr/</a>
1.13	Hellenic Survey of Geology and Mineral Exploration	Academia	Research Organisation	Public	Athens	Greece	Marine mining		3.6 Marine minerals mining	<a href="https://www.iqme.gr/index.php/en/">https://www.iqme.gr/index.php/en/</a>
1.14	CRES Centre for Renewable Energy Sources and Saving	Academia	Research Organisation	Public	Athens	Greece	Blue energy technologies, Biomass	Division of Renewable Energy Sources	3.2 Offshore wind, 3.3 Ocean renewable energy	<a href="http://www.cres.gr/cres/index_uk.html">http://www.cres.gr/cres/index_uk.html</a>
1.15	Foundation for Research and Technology – Hellas	Academia	Research Organisation	Public	Heraklion	Greece	Blue technologies/ (Blue) Bio-technologies/Offshore oil & gas	[a] PRAXI Network [b] Institute of Molecular Biology & Biotechnology (IMBB) [c] Institute of Petroleum Research (IPR)	Blue technologies, 2.4 (Blue) Bio-technologies, 3.1 Offshore oil & gas	[a] <a href="https://praxinetwork.gr/en/">https://praxinetwork.gr/en/</a> [b] <a href="https://www.imbb.forth.gr/en/">https://www.imbb.forth.gr/en/</a> [c] <a href="https://www.forth.gr/index_main.php?c=86&amp;I=e">https://www.forth.gr/index_main.php?c=86&amp;I=e</a>
1.16	National Center for Scientific Research "Demokritos"	Academia	Research Organisation	Public	Athens	Greece	Blue Bio-technologies/Green sea mobility	[a] Institute of Biosciences & Applications (IBA) [b] Institute Nanoscience Nanotechnology [c] Institute of Nuclear & Radiological Sciences & Technology, Energy & Safety (I.N. RA. S.T.E.S)	2.4 Blue Bio-technologies, 0.1 Shipbuilding (Green sea mobility)	[a] <a href="http://bio.demokritos.gr/en">http://bio.demokritos.gr/en</a> [b] <a href="https://inn.demokritos.gr/">https://inn.demokritos.gr/</a> [c] <a href="http://www.ipreteia.demokritos.gr/index.php?option=com_frontpage&amp;Itemid=1">http://www.ipreteia.demokritos.gr/index.php?option=com_frontpage&amp;Itemid=1</a>
1.17	Hellenic Centre for Marine Research (HCMR)	Academia	Research Organisation	Public	Athens	Greece	Blue Bio-technologies/Bio-security/Blue energy technologies	[a] Institute of Marine Biology, Biotechnology and Aquaculture (IMBBC) [b] Institute of Oceanography (IO) [c] Hellenic Network on Aquatic Invasive Species (ELNAIS)	2.4 Blue Bio-technologies, 3.2 Offshore wind, 3.3. Ocean renewable energy 6.2 Environmental Monitoring	[a] <a href="http://www.imbbc.hcmr.gr/content/welcome-imbbc-website">http://www.imbbc.hcmr.gr/content/welcome-imbbc-website</a> [b] <a href="https://io.hcmr.gr/">https://io.hcmr.gr/</a> [c] <a href="https://elnais.hcmr.gr/">https://elnais.hcmr.gr/</a>
1.18	Veterinary Research Institute, Hellenic Agricultural Organisation DEMETER (ELGO-DEMETER)	Academia	Research Organisation	Public	Thessaloniki	Greece	Blue Biotechnology, Fish Diseases, Aquaculture	Veterinary Research Institute, Laboratory of Fish, Shellfish and Crustacean Diseases	2.4 Blue Bio-technologies, 6.2 Environmental monitoring	<a href="http://www.vri.gr/">http://www.vri.gr/</a>
1.19	National Hellenic Research Foundation	Academia	Research Organisation	Public	Athens	Greece	(Blue) Bio-technologies	Institute of Biology, Medicinal Chemistry & Biotechnology	2.4 (Blue) Bio-technologies	<a href="http://www.eie.gr/nhrf/institutes/ibmcb/index-gr_ibmcb.html">http://www.eie.gr/nhrf/institutes/ibmcb/index-gr_ibmcb.html</a>

Mapping - Topic 1

1.20	CERTH Centre for Research & Technology Hellas	Academia	Research Organisation	Public	Thessaloniki	Greece	Blue Bio-technologies/Green sea mobility/Offshore oil & gas	[a] Institute of Applied Biosciences (INAB) [b]Hellenic Institute of Transport (HIT) [c] Chemical Process and Energy Resources Institute (CPERI) (Laboratory of Environmental Fuels and Hydrocarbons (LEFH)/Laboratory of Natural Resources and Renewable Energies Utilization (NRRE)/Laboratory of Process Systems Design and Implementation (PSDI))	2.4 Blue Bio-technologies, 0.1 Shipbuilding (Green sea mobility), 3.1 Offshore oil & gas, 3.7 Securing fresh water supply (desalination)	[a] <a href="https://www.inab.certh.gr/">https://www.inab.certh.gr/</a> [b] <a href="https://www.imet.gr/index.php/en/">https://www.imet.gr/index.php/en/</a> [c] <a href="https://www.cperi.certh.gr/">https://www.cperi.certh.gr/</a>
1.21	EcoWindWater	Industry	Company	Private	Athens	Greece	Desalination of seawater, Blue energy technologies		3.2 Offshore wind, 3.7 Securing fresh water supply (desalination)	
1.22	ETME Peppas & Associates	Industry	Company	Private	Athens	Greece	Engineering, Simulations, Consulting & management		3.2 Offshore wind (Float platform for wind measurements, power curve verification and wind resource assessment/FloatMast Reasearch Program)	<a href="https://etme.gr/">https://etme.gr/</a>
1.23	STREAMLINED	Industry	Company	Private	Pireaus	Greece	Offshore Design and Engineering, Finite Element structural analysis, Ballast Water Treatment System (BWTS) Retrofit, Scrubber Retrofit – Installation, Ship design, marine engineering and electrical studies		3.2 Offshore wind (Float platform for wind measurements in collaboration with ETME Company), 0.1 Shipbuilding (Green sea mobility-Scrubbers), 6.2 Environmental monitoring (BWTS)	<a href="http://www.streamlined.gr/">http://www.streamlined.gr/</a>
1.24	Venergia Energy SA	Industry	Company	Private	Athens	Greece	Development, construction & operation of renewable energy projects (wind, solar, biomass)		3.2 Offshore wind (Proposal submission)	<a href="http://v-energia.com/">http://v-energia.com/</a>
1.25	TERNA ENERGY	Industry	Company	Private	Athens	Greece	Planning, development and operation of energy projects: Wind energy, Hydroelectric projects, Pumped storage projects, Hybrid projects, Solar energy, Biogas projects & waste management		3.2 Offshore wind (Proposal submission)	<a href="https://www.terna-energy.com/">https://www.terna-energy.com/</a>
1.26	City Electric A.E. (R.F. Energy)	Industry	Company	Private	Athens	Greece	Planning, development and operation of energy projects, mainly wind energy projects		3.2 Offshore wind (Proposal submission)	<a href="http://www.rfenergy.gr/en/renewable-energy/">http://www.rfenergy.gr/en/renewable-energy/</a>
1.27	Elica Group	Industry	Company	Private	Athens	Greece	Renewable Energy Sources, Natural gas, Energy Projects & Equipment Supply, Infrastructure & Concessions, Energy Privatizations		3.2 Offshore wind (Proposal submission) 0.1 Shipbuilding (Green sea mobility)	<a href="https://www.copelouzos.gr/en/service/wind-farms/">https://www.copelouzos.gr/en/service/wind-farms/</a>
1.28	ELLAKTOR	Industry	Company	Private	Athens	Greece	Renewable Energy Sources (Wind farms), Environment, Concessions, Construction		3.2 Offshore wind (Proposal submission)	<a href="https://ellaktor.com/activities/ananeosimes-piges-energeias/">https://ellaktor.com/activities/ananeosimes-piges-energeias/</a>
1.29	Rokas Renewables	Industry	Company	Private	Athens	Greece	Energy projects (wind energy, Hydro Power Plants and Thermal Power Stations, Solar-thermal energy), Port equipment, Industrial equipmen		3.2 Offshore wind (Proposal submission)	<a href="http://www.rokasconstructions.gr/en/works_energy.htm">http://www.rokasconstructions.gr/en/works_energy.htm</a>

Mapping - Topic 1

1.30	PPC Renewables S. A	Industry	Company	Public	Athens	Greece	Energy projects (wind parks, Hydroelectric Plants, Photovoltaic Parks, hybrid energy systems)		3.2 Offshore wind (Proposal submission)	<a href="https://www.ppcr.gr/en/">https://www.ppcr.gr/en/</a>
1.31	SYCHEM Advanced water technologies	Industry	Company	Private	Athens	Greece	Renewable Energy Sources, Water treatment, Energy saving		3.3 Ocean renewable energy (Sea water thermal energy-Sea water Heat Pumps), 3.7 Securing fresh water supply (desalination)	<a href="https://www.sychem.gr/en/">https://www.sychem.gr/en/</a>
1.32	Climaveneta	Industry	Company	Private	Athens	Greece	Blue technologies, Heat pumps		3.3 Ocean renewable energy (Sea water thermal energy-Sea Water Heat Pumps)	<a href="https://www.climaveneta-hotels.gr/">https://www.climaveneta-hotels.gr/</a>
1.33	AQUATIC BIOLOGICALS	Industry	Company	Private	Crete	Greece	Marine Bio-technology, Prevention of fish diseases in aquaculture, Phage therapy products & advanced diagnostic services to the Aquaculture industry		2.4 Blue Bio-technologies	<a href="https://www.aquatic-biologicals.com/about.html">https://www.aquatic-biologicals.com/about.html</a>
1.34	APIVITA – Natural Cosmetics	Industry	Company	Private	Athens	Greece	Natural cosmetics		2.4 Blue Bio-technologies	<a href="https://www.apivita.com/natural-effective-holistic">https://www.apivita.com/natural-effective-holistic</a>
1.35	KORRES	Industry	Company	Private	Athens	Greece	Natural cosmetics		2.4 Blue Bio-technologies	<a href="https://gr.korres.com/el/home">https://gr.korres.com/el/home</a>
1.36	Mediterranean Biosciences SA (Medbio)	Industry	Company	Private	Chios	Greece	Cosmeceuticals, Nutraceuticals, Biomaterials, Nanotechnology, Biofuels, Bio-consulting		2.4 Blue Bio-technologies, Ocean renewable energy (biomass)	<a href="http://www.biotechgreece.com/">http://www.biotechgreece.com/</a>
1.37	MicroPHYCOS	Industry	Company	Private	Athens	Greece	Aquaculture, Algae products (Natural Extracts & Biofuel), Spirulina		2.4 Blue Bio-technologies, Ocean renewable energy (biomass)	<a href="http://www.microphykos.com/">http://www.microphykos.com/</a>
1.38	Algae Farms	Industry	Company	Private	Preveza	Greece	Algae bio-oil, Algae pellets, Algae briquettes		3.3 Ocean renewable energy (biomass)	<a href="http://algae-site.herokuapp.com/home">http://algae-site.herokuapp.com/home</a>
1.39	Praxis Fish Feeds	Industry	Company	Private	Pireas	Greece	Blue Biotechnology, Fish Feeds, Aquaculture		2.4 Blue Bio-technologies	<a href="https://www.praxisaquaculture.gr/praxisfishfeeds">https://www.praxisaquaculture.gr/praxisfishfeeds</a>
1.40	MINOTECH biotechnology	Industry	Company	Private	Crete	Greece	Restriction Enzymes, DNA Modifying Enzymes, Specialty Enzymes, Cytokines, Nucleic Acids and Markers, Antibodies and Molecular Biology Reagents.		2.4 Blue Bio-technologies	<a href="http://www.minotech.gr/">http://www.minotech.gr/</a>
1.41	NAP Engineering P.C.	Industry	Company	Private	Pireaus	Greece	Design, engineering and consultancy services for building of Merchant ships, Yachts, Naval and offshore structures		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.napeng.gr/">http://www.napeng.gr/</a>



Mapping - Topic 1

1.42	Gastrade	Industry	Company	Public	Athens	Greece	Study, design, construction, operation and exploitation of the necessary infrastructure for the receipt, transmission and distribution of natural gas as well as for its storage, liquefaction and re-gasification.		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.gastrade.gr/en">http://www.gastrade.gr/en</a>
1.43	Hellenic Gas Transmission System Operator (DESFA)	Industry	Company	Public	Athens	Greece	Operation, management, utilization and development of the National Natural Gas System and its interconnections		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.desfa.gr">www.desfa.gr</a>
1.44	Public Gas Corporation of Greece (DEPA) S.A	Industry	Company	Public	Athens	Greece	Natural Gas		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.depa.gr">www.depa.gr</a>
1.45	Piraeus Port Authority S.A.	Industry	Company	Public	Piraeus	Greece	Ship services, Container terminal, Car terminal, General cargo terminal, Coastal shipping, Cruise, Logistics center		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.olp.gr/">http://www.olp.gr/</a>
1.46	Patras Port Authority S.A.	Industry	Company	Public	Patras	Greece	Port services, Coastal shipping, Cruise		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.patrasport.gr/">http://www.patrasport.gr/</a>
1.47	Igoumenitsa Port Authority S.A.	Industry	Company	Public	Igoumenitsa	Greece	Coastal, Short sea shipping, Cruise, Port services		0.1 Shipbuilding (Green sea mobility)	<a href="https://oliq.gr/">https://oliq.gr/</a>
1.48	Hellenic Petroleum	Industry	Company	Private-Public	Athens	Greece	Oil and Gas Exploration, Natural Gas Trading and Transportation, Oil Refining, Petrochemicals, Electricity Generation		3.1 Offshore oil & gas	<a href="https://www.helpc.gr/en/the-group/">https://www.helpc.gr/en/the-group/</a>
1.49	Hellenic Hydrocarbon Resources Management S.A (HHRM).	Industry	Company	Public	Athens	Greece	Exploration & Production concessions, overview of the signed lease agreements, offshore safety, and active promotion of Greece as an attractive oil and gas destination to international investors.		3.1 Offshore oil & gas	<a href="https://www.greekhydrocarbons.gr/index.html">https://www.greekhydrocarbons.gr/index.html</a>
1.50	STRATEGIS Maritime Center of Excellence	Academia	Cluster/Technology Platforms		Athens	Greece	The main activity of Strategis focuses on the creation, development, and management of collaborative innovation networks and commercial clusters in the shipping industry, with emphasis on the application of advanced ICT technologies in digital shipping.			<a href="https://strategis-cluster.com/">https://strategis-cluster.com/</a>
1.51	Blue Energy Cluster – Greek Hub (PELAGOS)	Academia	Cluster/Technology Platforms			Greece	Blue energy technologies		3.2 Offshore wind, 3.3 Ocean renewable energy	<a href="http://be-cluster.eu/">http://be-cluster.eu/</a>

Mapping - Topic 1

1.52	CHORUS The clean energy cluster	Academia	Cluster/ Technology Platforms		Thessaloniki	Greece	Renewable energy, Resource efficiency, Energy efficiency,		3.2 (Offshore) wind, 3.3 (Ocean) renewable energy (biomass) (not specified)	<a href="http://www.choruscluster.org/root.en.aspx">http://www.choruscluster.org/root.en.aspx</a>
1.53	Hellenic Initiative MicrovivoKosmos	Academia	Cluster/ Technology Platforms			Greece	Exploration & commercial exploitation of the microbial national resources.		2.4 Blue Bio-technologies	<a href="http://www.mikrobiokosmos.org/">http://www.mikrobiokosmos.org/</a>
1.54	Hellenic BIO Cluster –HBIO	Academia	Cluster/ Technology Platforms		Athens	Greece	Pharmaceuticals, Biotechnology, Diagnostics, Medical Devices and Specialised Services		2.4 Blue Bio-technologies	<a href="http://hbio.gr/">http://hbio.gr/</a>
1.55	Hellenic Wind Energy Association- (HWEA/ELETAEN)	Civil society	Association		Athens	Greece	Promote the scientific research, technology and applications of wind energy. Express the well-meant interests of the industry and the public by actions and influence the creation and implementation of a robust framework to motivate the development of bioeconomy as a whole. Support the elaboration		3.2 Offshore wind	<a href="https://eletaen.gr/">https://eletaen.gr/</a>
1.56	The Greek Bioeconomy Forum	Civil society	Forum/Association			Greece			2.4 Blue Bio-technology	<a href="http://bioeconomyforum.gr/el/">http://bioeconomyforum.gr/el/</a>
1.57	Archipelagos, Institute of Marine Conservation	Civil society	NGO		Samos	Greece	Marine conservation, Marine mammals, Terrestrial conservation, Laboratory research		6.2 Environmental monitoring	<a href="https://archipelago.gr/en/">https://archipelago.gr/en/</a>
1.58	HELMEPA Hellenic Marine Environment Protection Association/HELMEPA Cadets	Civil society	NGO		Athens	Greece	Maritime Training Center for Pollution Prevention, Safety at Sea and Environmental Awareness			[a] <a href="https://helmeпа.gr/en/">https://helmeпа.gr/en/</a> [b] <a href="https://www.helmepacadets.gr/en/introduction">https://www.helmepacadets.gr/en/introduction</a>
1.59	World Wide Fund for Nature – Greece (EL)	Civil society	NGO		Athens	Greece	Conservation of the planet's biodiversity,ensuring the sustainable use of renewable natural resources,promoting the reduction of pollution and wasteful consumption			<a href="https://www.wwf.gr/">https://www.wwf.gr/</a>
1.60	Institute of Energy for South-East Europe (IENE)	Civil society	NGO		Athens	Greece	Provide up to- date information on key energy and environmental issues in South-East Europe.		3.1 Offshore oil & gas, Natural gas, 3.2 (Offshore) wind, 3.3 (Ocean) renewable energy (not specified)	<a href="https://www.iene.gr/default.asp?lng=1">https://www.iene.gr/default.asp?lng=1</a>
1.61	MEDITERRANEAN SOS NETWORK	Civil society	NGO		Athens	Greece	Public awareness raising, Advocating, lobbying and promoting cooperation among social partners, Promoting active public participation, Promoting intercultural exchanges. Fields of intervention: Energy & climate change, Marine environment & coastal zone, Water resources, Natural protected areas			<a href="http://medsos.gr/">http://medsos.gr/</a>

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	University of Zagreb	Academia	University	Public	Zagreb	Croatia	Blue Bio-technologies, (Offshore) oil & gas, Blue Energy technologies, Green sea mobility, (Marine) mining,	[a] Faculty of Food Technology and Bio-technology [b] Faculty of Mechanical Engineering & Naval Architecture, [c] Faculty of Mining, Geology and Petroleum Engineering, [d] Faculty of Science/ Department of Biology [e] Faculty of Pharmacy and Biochemistry	2.4 Blue Bio-technologies, 3.1 (Offshore) oil & gas, 0.1 Shipbuilding, 3.2 Offshore wind, 3.6 (Marine) minerals mining, 3.3 Ocean renewable energy	[a] <a href="http://www.pbf.unizg.hr/en">http://www.pbf.unizg.hr/en</a> [b] <a href="http://www.fsb.unizg.hr/">http://www.fsb.unizg.hr/</a> [c] <a href="http://www.rgn.unizg.hr/">http://www.rgn.unizg.hr/</a> [d] <a href="https://www.pmf.unizg.hr/biol/en">https://www.pmf.unizg.hr/biol/en</a> [e] <a href="http://www.pharma.unizg.hr/">http://www.pharma.unizg.hr/</a>
1.2	University of Rijeka	Academia	University	Public	Rijeka	Croatia	Blue Bio-technologies, Blue energy technologies, Green sea mobility, Shipbuilding, RES engineering	[a] Department of Bio-technology [b] Faculty of Engineering/Department of Naval Architecture & Ocean Engineering [c] Faculty of Engineering/Department of Thermodynamics & Energy Engineering [d] Faculty of Maritime Studies	2.4 Blue Bio-technologies, 3.3 Ocean renewable energy, 3.2 Offshore wind, 0.1 Shipbuilding	[a] <a href="http://www.biotech.uniri.hr/en/">http://www.biotech.uniri.hr/en/</a> [b] <a href="http://www.riteh.uniri.hr/en/organisation/departments/departament-naval-architecture-and-ocean-engineering/">http://www.riteh.uniri.hr/en/organisation/departments/departament-naval-architecture-and-ocean-engineering/</a> [c] <a href="http://www.riteh.uniri.hr/en/organisation/departments/departament-thermodynamics-and-energy-engineering/">http://www.riteh.uniri.hr/en/organisation/departments/departament-thermodynamics-and-energy-engineering/</a> [d] <a href="https://www.pfri.uniri.hr/web/en/index.php">https://www.pfri.uniri.hr/web/en/index.php</a>
1.3	University of Osijek	Academia	University	Public	Osijek	Croatia	Blue Bio-technologies	Faculty of Food Technology	2.4 Blue Bio-technologies	<a href="http://www.ptfos.unios.hr/">http://www.ptfos.unios.hr/</a>
1.4	University of Split	Academia	University	Public	Split	Croatia	Green sea mobility, Marine mining/Blue Bio-technologies	[a] Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture [b] Faculty of Maritime Studies [c] Department of Marine Studies	2.4 Blue Bio-technologies, 3.6 Marine minerals mining, 0.1 Shipbuilding	[a] <a href="https://www.fesb.unist.hr/">https://www.fesb.unist.hr/</a> [b] <a href="https://www.pfst.unist.hr/hr/">https://www.pfst.unist.hr/hr/</a> [c] <a href="http://more.unist.hr/">http://more.unist.hr/</a>
1.5	University of Dubrovnik	Academia	University	Public	Dubrovnik	Croatia	Green sea mobility/ Bio-security/	[a] Maritime Department [b] Department of Aquaculture	0.1 Shipbuilding (Green sea mobility), 6.2 Environmental monitoring	[a] <a href="http://web.unidu.hr/odjeli.php?idizbornik=636">http://web.unidu.hr/odjeli.php?idizbornik=636</a> [b] <a href="http://web.unidu.hr/odjeli.php?idizbornik=636">http://web.unidu.hr/odjeli.php?idizbornik=636</a>
1.6	Centres of Research Excellence (CoRE)	Academia				Croatia	Identify and evaluate researchers and research that are innovative, have the potential of the discovery, that are possible			<a href="https://www.zci.hr/en/">https://www.zci.hr/en/</a>
1.7	Croatian Geological Institute	Academia	Research Organisation	Public	Zagreb	Croatia	(Marine) mining/geosciences/ geological engineering	Department of Mineral Resources	3.6 (Marine) minerals mining	<a href="http://www.hgi-cgs.hr/eng/">http://www.hgi-cgs.hr/eng/</a>
1.8	Institute Ruđer Bošković	Academia	Research Organisation	Public	Zagreb	Croatia	Blue Bio-technologies/Bio-security, Investigation of water mass dynamics	[a] Division of Molecular Biology [b] Division of Organic Chemistry & Biochemistry [c] Center of Marine Research [d] Division for Marine and Environmental Research	2.4 Blue Bio-technologies, Environmental monitoring	[a] <a href="https://www.irb.hr/eng/Divisions/Division-of-Molecular-Biology">https://www.irb.hr/eng/Divisions/Division-of-Molecular-Biology</a> [b] <a href="https://www.irb.hr/eng/Divisions/Division-of-Organic-Chemistry-and-Biochemistry">https://www.irb.hr/eng/Divisions/Division-of-Organic-Chemistry-and-Biochemistry</a> [c] <a href="https://www.irb.hr/eng/Divisions/Center-for-Marine-Research">https://www.irb.hr/eng/Divisions/Center-for-Marine-Research</a> [d] <a href="https://www.irb.hr/eng/Divisions/Division-for-Marine-and-Environmental-Research">https://www.irb.hr/eng/Divisions/Division-for-Marine-and-Environmental-Research</a>
1.9	BIOCentre Incubation Centre for Biosciences	Academia	Incubator/Research Organisation	Public	Zagreb	Croatia	Blue Bio-technologies		2.4 Blue Bio-technologies	<a href="https://www.biocentre.hr/en/get-to-know-us/">https://www.biocentre.hr/en/get-to-know-us/</a>
1.10	Brodarski Institute	Academia	Research Organisation	Public	Zagreb	Croatia	Blue technologies, Green sea mobility/Shipbuilding, Offshore technologies		3.2 Offshore wind, 3.3 Ocean renewable energy, 0.1 Shipbuilding (Green sea mobility)	<a href="http://hrbi.hr/en/home-2/">http://hrbi.hr/en/home-2/</a>

Mapping - Topic 1

1.11	Institute of Oceanography and Fisheries - IOF	Academia	Research Organisation	Public	Split	Croatia	Blue Bio-technologies, Bio-security, biological, chemical and physical oceanography, fisheries biology and aquaculture		2.4 Blue Bio-technologies, 6.2 Environmental monitoring	<a href="http://www.izor.hr/web/quest/home">http://www.izor.hr/web/quest/home</a>
1.12	KONČAR - ELECTRICAL ENGINEERING INSTITUTE	Academia	Research Organisation	Private	Zagreb	Croatia	Wind turbines, Renewable sources, transformers, rotating machines, switching devices,		3.2 (Offshore) wind (not specified)	<a href="https://www.koncar-institut.hr/en/">https://www.koncar-institut.hr/en/</a>
1.13	EIHP - Energy Institute Hrvoje Požar	Academia	Research Organization	Public	Zagreb	Croatia	Renewable energy sources, environmental and climate protection, Strategic planning in the energy sector, Development of electric-power, gas, petroleum and heating systems, energy efficiency			<a href="http://www.eihp.hr/?lang=en">http://www.eihp.hr/?lang=en</a>
1.14	Science and Technology Park of the University of Rijeka	Academia	Science and technology Hub	Public	Rijeka	Croatia	Protection and transfer of intellectual property, the incubation of new businesses, and licensing, consulting, training, business plan development, marketing services, market research, EU project proposal writing, and other.			<a href="https://www.step.uniri.hr/een/">https://www.step.uniri.hr/een/</a>
1.15	Brodosplit	Industry	Company	Private	Split	Croatia	Green sea mobility, Shipbuilding, Diesel and LNG powered engine manufacturing, Renewable energy, Design & engineering		0.1 Shipbuilding (+Green sea mobility), 3.2 (Offshore) wind (not specified)	<a href="https://www.brodosplit.hr/">https://www.brodosplit.hr/</a>
1.16	LNG Croatia LLC for liquefied natural gas business (LNG Croatia LLC)	Industry	Company	Private	Zagreb	Croatia	Green sea mobility, maintenance and development of the LNG terminal		0.1 Shipbuilding (Green sea mobility)	<a href="https://lng.hr/en/home">https://lng.hr/en/home</a>
1.17	INA, d.d.	Industry	Company		Zagreb	Croatia	Offshore oil & gas, Exploration and Production Refineries and Marketing Consumer Services & Retail		3.1 Offshore oil & gas	<a href="https://www.ina.hr/en/">https://www.ina.hr/en/</a>

Mapping - Topic 1

1.18	Podzemno skladište plina d.o.o	Industry	Company	Private	Zagreb	Croatia	Natural gas storage facilities		3.1 Offshore oil & gas	<a href="http://www.psp.hr">www.psp.hr</a>
1.19	Adriatic Algae Biotech Ltd	Industry	Company	Private	Rijeka	Croatia	Blue Bio-technologies, Cultivation of microalgae, Micro algae-based products development		2.4 Blue Bio-technologies	<a href="https://aa-biotech.hr/">https://aa-biotech.hr/</a>
1.20	Particula Group	Industry	Company	Private	Rijeka	Croatia	Blue Bio-technologies, Algae-based Bio-plastics and Bio-fertilizers, Algae-based CO2 Capture, Algae-based Wastewater Treatment, Algae-based Food & Feed		2.4 Blue Bio-technologies	<a href="https://particula-group.com/#/!up">https://particula-group.com/#/!up</a>
1.21	Vaillant (Croatia)	Industry	Company	Private	Zagreb	Croatia	Blue energy technologies, Heating, cooling, air conditioning and renewables		3.3 Ocean renewable energy (Sea water thermal energy-Sea Water Heat Pumps)	<a href="https://www.vaillant.hr/">https://www.vaillant.hr/</a>
1.22	Medjimurje Energy Agency Ltd. – MENEА	Industry	Company		Čakovec	Croatia	Energy technologies, energy efficiency.		3.3 Ocean renewable energy (Sea water thermal energy-Sea Water Heat Pumps)	<a href="https://www.menea.hr/impressum/">https://www.menea.hr/impressum/</a>
1.23	BIOTECH Regional Centre for Biotechnology Research in Brodsko-Posavska County	Academia	Cluster/ Technology Platforms		Brodsko-Posavska	Croatia	Blue Bio-technologies		2.4 Blue Bio-technologies	<a href="http://www.biotech.hr/">http://www.biotech.hr/</a>
1.24	EUVITA Cluster of North-Western Croatia	Academia	Cluster/ Technology Platforms		Varaždin	Croatia	Blue Bio-technologies		2.4 Blue Bio-technologies	<a href="http://www.euvitacluster.com/o-nama.html">http://www.euvitacluster.com/o-nama.html</a>
1.25	Varaždin Biotechnology Cluster	Academia	Cluster/ Technology Platforms		Varaždin	Croatia	Blue Bio-technologies, Life sciences		2.4 Blue Bio-technologies	<a href="http://www.varazdinpark.com/">http://www.varazdinpark.com/</a>
1.26	Blue Energy Cluster – Croatian Hub (PELAGOS)	Academia	Cluster/ Technology Platforms			Croatia	Blue energy technologies		3.2 Offshore wind, 3.3. Ocean renewable energy	<a href="http://be-cluster.eu/">http://be-cluster.eu/</a>

Mapping - Topic 1

1.27	Istrian Regional Energy Agency-IRENA	Civil society	NGO		Istria	Croatia	Blue energy technologies, energy efficiency, R.E.S, environmental protection (Participation in MAESTRALE Interreg programme for Marine Renewable Energy)		3.2 Offshore wind, 3.3. Ocean renewable energy	<a href="http://www.irena-istra.hr/index.php?id=3360">http://www.irena-istra.hr/index.php?id=3360</a>
1.28	World Wide Fund for Nature – Croatia (HR)	Civil society	NGO		Zagreb	Croatia	Conservation of the planet's biodiversity, ensuring the sustainable use of renewable natural resources, promoting the reduction of pollution and wasteful consumption			<a href="https://www.wwfadria.org/who_we_are/our_story/">https://www.wwfadria.org/who_we_are/our_story/</a>
1.29	REC Croatia (Regional Environmental Center)	Civil society	Other		Zagreb	Croatia	Renewable energy sources, Energy, Environment & NRM, Pollution & Waste Management (incl. treatment), Water			croatia.rec.org

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	Politecnico di Milano	Academia	University	Public	Milan	Italy	Blue energy technologies, Green sea mobility	[a]Department of Aerospace Science & Technology (DAER)/POLI-Wind-Wind Energy Lab [b] Department of Architecture and Design (in collaboration with Uni of Genova) [c] Department of Civil and Environmental Engineering/ FLUIDLAB	3.2 Offshore wind, 3.3 Ocean renewable energy ,0.1 Shipbuilding	[a] <a href="https://www.aero.polimi.it/index.php?id=304&amp;L=0&amp;uid=22">https://www.aero.polimi.it/index.php?id=304&amp;L=0&amp;uid=22</a> [b] <a href="https://unispezia.it/en/naval-and-nautical-design/">https://unispezia.it/en/naval-and-nautical-design/</a> [c] <a href="http://www.fluidlab.polimi.it/">http://www.fluidlab.polimi.it/</a>
1.2	Università degli Studi di Milano	Academia	University	Public	Milan	Italy	Blue Bio-technologies	Faculty of Agricultural and Food Sciences	Blue Bio-technologies	<a href="https://www.unimi.it/en/education/faculties-and-schools/agricultural-and-food-sciences">https://www.unimi.it/en/education/faculties-and-schools/agricultural-and-food-sciences</a>
1.3	University of Verona	Academia	University	Public	Verona	Italy	Blue Bio-technologies	Department of Biotechnology/SOLE-Lab.	2.4 Blue Bio-technologies ,3.3 Ocean renewable energy (algae biomass)	<a href="https://www.solelab.org/home">https://www.solelab.org/home</a>
1.4	University of Padua	Academia	University	Public	Padua	Italy	Blue Bio-technologies,(Marine) mining, Offshore oil & gas	[a]Department of Geosciences [b]Department of Biology [c]Department of Chemical Sciences [d]Department of Economic and Business Scienze "MarcoFanno"	2.4 Blue Bio-technologies, 3.6 (Marine) minerals mining, 3.1 Offshore oil & gas, 3.3 Ocean renewable energy (algae biomass), [d] Sustain knowledge exchange and business support through community development , promotion of joint innovation activities to foster sustainable product and process innovation in the field of blue economy, support to technology transfer among research organizations and firms to enhance business competitiveness within the blue economy / value chain	[a] <a href="https://geoscienze.unipd.it/">https://geoscienze.unipd.it/</a> [b] <a href="https://www.biologia.unipd.it/en/">https://www.biologia.unipd.it/en/</a> [c] <a href="https://www.chimica.unipd.it/">https://www.chimica.unipd.it/</a> [d] <a href="http://www.economia.unipd.it">www.economia.unipd.it</a>
1.5	Università Mediterranea di Reggio Calabria	Academia	University	Public	Calabria	Italy	Blue energy technologies, Wave energy converters, REWEC3, Blue-Bio-technologies	[a] Department of Civil, Energy, Environmental and Material Engineering (DICEAM)/ Natural Ocean Engineering Lab (NOEL). [b] Department of Agro-forest and Environmental Sciences and Technologies	3.2 Offshore wind, 3.3 Ocean renewable energy , 2.4 Blue Bio-technologies	[a] <a href="http://www.noel.unirc.it/">http://www.noel.unirc.it/</a> [b] <a href="http://www.unirc.it/">http://www.unirc.it/</a>
1.6	Polytechnic University of Bari	Academia	University	Public	Bari	Italy	Wave energy harvesting, Oscillating Water Column	Department of Mechanics, Mathematics & Management/ Lab of for wave energy conversion devices and Wells turbines	3.3 Ocean renewable energy	<a href="http://www.en.poliba.it/research/lab-wave-energy-conversion-devices-and-wells-turbines">http://www.en.poliba.it/research/lab-wave-energy-conversion-devices-and-wells-turbines</a>
1.7	University of Bari	Academia	University	Public	Bari	Italy	Blue Bio-technologies, (Marine) mining, Bio-security	[a]Department of Biosciences, Biotechnologies and Biopharmaceutics [b]Department of Earth and Geo-environmental Sciences [c] Department of Biology	2.4 Blue Bio-technologies, 3.6 (Marine) minerals mining, 6.2 Environmental monitoring	[a] <a href="https://www.uniba.it/ricerca/dipartimenti/bioscienze-biotechnologie/dipartimento">https://www.uniba.it/ricerca/dipartimenti/bioscienze-biotechnologie/dipartimento</a> [b] <a href="http://www.geo.uniba.it/">http://www.geo.uniba.it/</a> [c] <a href="https://www.uniba.it/ricerca/dipartimenti/biologia">https://www.uniba.it/ricerca/dipartimenti/biologia</a>
1.8	Polytechnic University of Marche	Academia	University	Public	Ancona	Italy	Blue Biotechnologies, Blue energy technologies, Renewable systems,	[a] Department of Life and Environmental Sciences (DiSVA) [b] Faculty of Engineering	2.4 Blue Biotechnology, 3.2 Offshore wind, 3.3 Ocean renewable energy	[a] <a href="https://www.disva.univpm.it/?language=en">https://www.disva.univpm.it/?language=en</a> [b] <a href="https://www.ingegneria.univpm.it/">https://www.ingegneria.univpm.it/</a>
1.9	University of Bologna	Academia	University	Public	Bologna	Italy	Blue Bio-technologies, Bio-security, (Marine) Mining, (Offshore) oil&gas, Green sea mobility, Blue energy technologies	[a]Department of Biological, Geological, and Environmental Sciences - BiGeA [b]Department of Civil, Chemical, Environmental, and Materials Engineering-DICAM (+Lab. LIDR (Laboratorio di ingegneria IDRaulica – Hydraulic Engineering Laboratory) [c]Department of Industrial Engineering - DIN [d]Pharmacy and Biotechnology - FaBIT	2.4 Blue Bio-technologies, 6.2 Environmental Monitoring, 3.6 (Marine) minerals mining, 3.1 (Offshore) oil & gas, 0.1 Shipbuilding (Green sea mobility), 3.3 Ocean renewable energy (wave energy converter)	[a] <a href="https://bigea.unibo.it/it">https://bigea.unibo.it/it</a> [b] <a href="https://dicam.unibo.it/it">https://dicam.unibo.it/it</a> [c] <a href="https://ingegneriaindustriale.unibo.it/it">https://ingegneriaindustriale.unibo.it/it</a> [d] <a href="https://fabit.unibo.it/en/index.html">https://fabit.unibo.it/en/index.html</a>

Mapping - Topic 1

1.10	University of Siena	Accademia	University	Public	Siena	Italy	Blue Bio-technologies/Bio-security, Blue energy technologies, (Marine) mining	[a] Department of Biotechnology, chemistry and pharmacy [b] Department of Physical, Earth and Environmental Sciences [c] Department of Medical biotechnologies	2.4 Blue Bio technologies, 3.2 Offshore wind, 3.3 Ocean renewable energy, 3.6 (Marine) minerals mining, 6.2 Environmental monitoring	[a] <a href="https://www.dbcf.unisi.it/en">https://www.dbcf.unisi.it/en</a> [b] <a href="https://www.dsfa.unisi.it/en/department/presentation">https://www.dsfa.unisi.it/en/department/presentation</a> [c] <a href="https://www.dbm.unisi.it/en">https://www.dbm.unisi.it/en</a>
1.11	University of Ferrara	Accademia	University	Public	Ferrara	Italy	Blue Bio-technologies, Bio-security, (Marine) mining, Blue Energy technologies	[a] Department of Life Sciences and Biotechnology [b] Department of Earth sciences [c] Department of Engineering	2.4 Blue Bio-technologies, 6.2 Environmental Monitoring, 3.6 (Marine) minerals mining, 3.2 Offshore wind, 3.3 Ocean renewable energy	[a] <a href="http://sveb.unife.it/it">http://sveb.unife.it/it</a> [b] <a href="http://fst.unife.it/en">http://fst.unife.it/en</a> [c] <a href="https://de.unife.it/en">https://de.unife.it/en</a>
1.12	University of Trieste	Accademia	University	Public	Trieste	Italy	Marine mining, Offshore oil & gas, Green sea mobility	[a] Department of Mathematics and Geosciences [b] Department of Engineering and Architecture [c] Department of Life sciences	3.6 Marine minerals mining, 3.1 Offshore oil & gas, 0.1 Shipbuilding (Green sea mobility)	[a] <a href="https://dmg.units.it/">https://dmg.units.it/</a> [b] <a href="https://dia.units.it/it">https://dia.units.it/it</a> [c] <a href="https://dsv.units.it/it">https://dsv.units.it/it</a>
1.13	University of Udine	Accademia	University	Public	Udine	Italy	Marine mining, Offshore oil & gas, Blue biotechnologies	[a] Department of Environment/Sector of Geology [b] Department of Aquaculture and Faunal Resources/Sector of Algae biomass [c] Department of Biotechnology and Genomics/Sector of Biotechnology and animal genomics/Biotechnology and plant genomics	2.4 Blue Bio-technologies, 3.6 Marine minerals mining, 3.1 Offshore oil & gas,	<a href="https://www.uniud.it/en/uniud-international?set_language=en">https://www.uniud.it/en/uniud-international?set_language=en</a> (main page)
1.14	University of Trento	Accademia	University	Public	Trento	Italy	Modelling and simulation, Wave energy convertes	Department of Industrial Engineering	3.3 Ocean renewable energy	<a href="http://www.dii.unitn.it/en">http://www.dii.unitn.it/en</a>
1.15	University of Camerino	Accademia	University	Public	Camerino	Italy	Blue Bio-technologies, Marine mining, Offshore oil & gas	[a] School of Bioscience and Veterinary Medicine /Department of Biosciences & Biotechnology [b] School of Science and Technology/ Department of Geology	2.4 Blue Bio-technologies, 3.6 Marine minerals mining, 3.1 Offshore oil & gas, 3.3 Ocean renewable energy (algae biomass)	[a] <a href="http://biologybiotechnology.unicam.it/">http://biologybiotechnology.unicam.it/</a> [b] <a href="https://geologia.unicam.it/">https://geologia.unicam.it/</a>
1.16	University of Catania	Accademia	University	Public	Catania	Italy	(Marine) mining, Blue Bio-technologies, Bio-security	Biological, Geological and Environmental Sciences	2.4 Blue Bio-technologies, 3.6 (Marine) minerals mining, 6.2 Environmental Monitoring	<a href="http://www.dipbiogeo.unict.it/">http://www.dipbiogeo.unict.it/</a>
1.17	University of Palermo	Accademia	University	Public	Palermo	Italy	Marine mining, Bio-security	Department of Earth and Sea Sciences	3.6 Marine minerals mining, 6.2 Environmental Monitoring	<a href="https://www.unipa.it/dipartimenti/distem/struttura/presentazione.html">https://www.unipa.it/dipartimenti/distem/struttura/presentazione.html</a>
1.18	National Institute of Oceanography and Experimental Geophysics - OGS	Accademia	Research Organisation	Public	Trieste	Italy	Blue energy technologies/Marine mining, Offshore oil & gas /Blue Bio-technologies/Bio-security/Green sea mobility		0.1 Shipbuilding (Green sea mobility), 2.4 Blue Bio-technologies, 3.1 Offshore oil & gas, 3.6, Marine minerals mining, 6.2 Environmental monitoring, 3.4 Carbon capture and storage	<a href="https://www.inogs.it/it">https://www.inogs.it/it</a>
1.19	National Inter-University Consortium for Marine Sciences - CoNISMA	Accademia	Research Organisation	Public	Roma (main office)	Italy	Blue energy technologies/Marine mining/Blue Bio-technologies/Bio-security		3.2 Offshore wind, 3.3 Ocean renewable energy, 3.6 Marine minerals mining, 2.4 Blue Bio-technologies, 6.2 Environmental monitoring	<a href="http://www.conisma.it/en/">http://www.conisma.it/en/</a>
1.20	CNR National Research Council	Accademia	Research Organisation	Public	Roma (main office)	Italy	Blue energy technologies/ Marine mining/Blue Bio-technologies/Bio-security/ Green sea mobility	[a] Institute of Marine Science (ISMAR) [b] Institute of Biological Resources and Marine Biotechnology (IRBIM) [c] Institute of Anthropic Impacts and Sustainability in marine environment (IAS), [d] Institute of Marine Engineering (INM) [e] Institute for advanced energy technologies "Nicola Giordano" (ITAE)	3.2 Offshore wind, 3.3 Ocean renewable energy, 3.6 Marine minerals mining, 2.4 Blue Bio-technologies, 6.2 Environmental monitoring, 0.1 Shipbuilding (Green sea mobility)	[a] <a href="http://www.ricercamarina.cnr.it/en/ismar.php">http://www.ricercamarina.cnr.it/en/ismar.php</a> [b] <a href="http://www.ricercamarina.cnr.it/en/irbim.php">http://www.ricercamarina.cnr.it/en/irbim.php</a> [c] <a href="http://www.ricercamarina.cnr.it/en/ias.php">http://www.ricercamarina.cnr.it/en/ias.php</a> [d] <a href="http://www.inm.cnr.it/">http://www.inm.cnr.it/</a> [e] <a href="http://www.itae.cnr.it/en/">http://www.itae.cnr.it/en/</a>



Mapping - Topic 1

1.21	International Centre for Genetic Engineering & Biotechnology	Academia	Research Organisation	Public	Trieste	Italy	Medical Biotechnology, Industrial Biotechnology, Plant Biology & Biotechnology		2.4 Blue Bio-technologies	<a href="https://www.icgeb.org/">https://www.icgeb.org/</a>
1.22	Alma Mater Studiorum – University of Bologna/Inter-Departmental Centre for Research in Environmental Sciences	Academia	Research Organisation	Public	Bologna	Italy	Environmental/territory management/ Modelling Vulnerability and Environmental Impact Assessment/Energy management/biomass products/Environmental quality assessment/Integrated coastal management			<a href="https://centri.unibo.it/cirsa/en">https://centri.unibo.it/cirsa/en</a>
1.23	AREA Science Park	Academia	Research Organisation	Public	Trieste	Italy	Innovative materials/ Environment & energy/Genomics & epigenomics/Circular economy/ Smart cities & mobility			<a href="http://en.areasciencepark.it/">http://en.areasciencepark.it/</a>
1.24	Aster innovazione attiva	Academia	Joint Stock Consortium	Public	Bologna	Italy	Energy & Environment, ICT & Design, Mechanics & Materials and Life Sciences			<a href="https://www.aster.it/en">https://www.aster.it/en</a>
1.25	REGIONE EMILIA ROMAGNA SGSS – Servizio Geologico, Sismico e dei Suoli della Regione Emilia-Romagna	Government	Public Authority	Public	Bologna	Italy	Geological research, (Marine) maning		3.6 (Marine) minerals mining	<a href="http://ambiente.regione.emilia-romagna.it/geologia/geologia-sismica-suoli">http://ambiente.regione.emilia-romagna.it/geologia/geologia-sismica-suoli</a>
1.26	Regione Umbria – Servizio Geologico	Government	Public Authority	Public	Umbria	Italy	Geological research, (Marine) maning		3.6 (Marine) minerals mining	<a href="http://www.regione.umbria.it/">http://www.regione.umbria.it/</a>
1.27	North Adriatic Sea Port Authority	Government	Public Authority	Public	Venice	Italy	Green sea mobility, environmental sustainability, Requalification of port areas,		3.5 Aggregates mining, 0.1 Shipbuilding (Green sea mobility)	<a href="http://www.port.venice.it">http://www.port.venice.it</a>
1.28	Bari Port Authority	Government	Public Authority	Public	Bari	Italy	Green sea mobility, environmental sustainability		0.1 Shipbuilding (Green sea mobility)	<a href="http://www.porto.bari.it/">http://www.porto.bari.it/</a>
1.29	Veneto Region	Government	Public Authority	Public		Italy			Blue growth, EUSAIR	
1.30	WAVENERGY.it S.r.l.	Industry	Company ( Spin-Off)	Private	Calabria	Italy	Design, maintenance, control, monitoring, and management of: Plants for		3.2 Offshore wind, 3.3 Ocean renewable energy	<a href="https://www.wavenergy.it/">https://www.wavenergy.it/</a>
1.31	GENERMA Srl	Industry	Company	Private	Falerone	Italy	Wave energy converters		3.3 Ocean renewable energy	<a href="https://www.generma.com/">https://www.generma.com/</a>
1.32	Faggiolati Pumps SpA	Industry	Company	Private	Macerata	Italy	Wave energy converters, Electric pumps, mixers, Aeration, Hydraulics, Materials		3.2 Ocean renewable energy	<a href="http://www.faggiolatipumps.it/index.html">http://www.faggiolatipumps.it/index.html</a>

Mapping - Topic 1

1.33	Umbra Group SpA (UMBRA)	Industry	Company	Private	Foligno	Italy	Supply of products aimed at the energy market (PTOs and wave devices), Production of recirculating ball screws in the aeronautics sector		3.2 Ocean renewable energy	<a href="https://www.umbragroup.com/">https://www.umbragroup.com/</a>
1.34	Ponte di Archimede International S P A	Industry	Company		Messina	Italy	Energy from marine currents, Marine & Hydrokinetic		3.2 Ocean renewable energy	<a href="http://www.pontediarchimede.it/language_us">http://www.pontediarchimede.it/language_us</a>
1.35	Hydra Solutions Srl	Industry	Company	Private	Casalserego	Italy	Provide engineering services mainly for environmental and maritime sectors, and develop custom instrumentation and		3.2 Offshore wind, 3.3 Ocean renewable energy	<a href="http://www.hydrasolutions.org/index.html">http://www.hydrasolutions.org/index.html</a>
1.36	Sky Saver S.R.L	Industry	Company	Private	Bari	Italy	Blue energy technologies		3.2 Offshore wind	
1.37	SEVA S.r.l	Industry	Company	Private	Milan		Wind turbine plants, Hydroelectric plants		3.2 Offshore wind	<a href="http://www.sevasri.it/index.php/en/">http://www.sevasri.it/index.php/en/</a>
1.38	RSE (Ricerca sul Sistema Energetico - Research on the Energy System) SpA	Industry	Company	Public	Milan	Italy	Wave converters, Electric system research, Business projects, Laboratory tests		3.3 Ocean renewable energy	<a href="http://www.rse-web.it/trasparenza.page">http://www.rse-web.it/trasparenza.page</a>
1.39	ENEL Green Power	Industry	Company	Private		Italy	Hydro, Wind, Solar, Geothermal, Biomass		3.2 Offshore wind, 3.3 Ocean renewable energy	<a href="https://www.enelgreenpower.com/countries/europe/Italy">https://www.enelgreenpower.com/countries/europe/Italy</a>
1.40	RINA (formerly D'Appolonia)	Industry	Company			Italy	Feasibility and specialized studies, Design, Project Management, Site engineering, and Operation & maintenance management		3.3 Ocean renewable energy (wave converters), 3.2 Offshore wind, (measure metocean data (winds, waves, water level/velocity/acceleration, salinity, density, atmospheric pressure, and temperature)	<a href="https://www.rina.org/en/">https://www.rina.org/en/</a>
1.41	FINCANTIERI S.P.A.	Industry	Company	Private	Trieste	Italy	Shipbuilding, Ship repair & conversion, Offshore support vessels, LNG fuelled ferries, Systems & components		0.1 Shipbuilding (Green sea mobility), 3.1 Offshore oil & gas (support vessels for exploration & production sector)	<a href="https://www.fincantieri.com/en/">https://www.fincantieri.com/en/</a>
1.42	FINCANTIERI Offshore	Industry	Company	Private	Trieste	Italy	Drillships, Floating offshore wind turbine platform		3.1 Offshore oil & gas, 3.2 Offshore wind	<a href="https://www.fincantierioffshore.it/">https://www.fincantierioffshore.it/</a>
1.43	ENI	Industry	Company	Private	Milan (Branch)	Italy	Offshore oil & gas activities, Natural Gas & LNG, RES		3.1 Offshore oil & gas, 0.1 Shipbuilding (Green sea mobility) 3.2 Offshore wind	<a href="https://www.eni.com/en-IT/home.html">https://www.eni.com/en-IT/home.html</a>
1.44	EDISON	Industry	Company			Italy	Hydrocarbons, Gas infrastructures, RES (hydroelectric & thermoelectric power plants, wind and photovoltaic installations)		3.1 Offshore oil & gas, 0.1 Shipbuilding (Green sea mobility)	<a href="http://www.edison.it/">http://www.edison.it/</a>
1.45	Terminale GNL Adriatico Srl (Adriatic LNG)	Industry	Company	Private	Milan	Italy	Operation of regasification LNG terminal located offshore Italy, in the northern Adriatic Sea.		0.1 Shipbuilding (Green sea mobility)	<a href="https://www.adriaticlng.it/en/the-company">https://www.adriaticlng.it/en/the-company</a>
1.46	Wärtsilä Italia S.p.A.	Industry	Company	Private	Trieste	Italy	Marine technology, Marine applications		0.1 Shipbuilding (Green sea mobility/scrubbers )	<a href="https://www.wartsila.com/ita/en">https://www.wartsila.com/ita/en</a>

Mapping - Topic 1

1.47	Renexia S.p.A.	Industry	Company	Public	Chieti	Italy	Development, design, construction and management of facilities for the exploitation of renewable energy sources( Wind turbines, Photovoltaic panels)		3.2 Offshore wind	<a href="https://www.renexia.it/">https://www.renexia.it/</a>
1.48	Moncada EnergyGroup	Industry	Company	Private	Rovereto	Italy	Operator in the renewable energy sector (wind energy, photovoltaic & biomass)		3.2 Offshore wind	<a href="https://www.moncadaenergygroup.com/">https://www.moncadaenergygroup.com/</a>
1.49	TREVI Energy S.p.A. a S.U.	Industry	Company	Private	Cesena	Italy	Renewable energy sources, Marine works, Industrial & civil building, Water research		3.2 Offshore wind	<a href="https://www.trevigroup.com/en/">https://www.trevigroup.com/en/</a>
1.50	3R Energia s.r.l.	Industry	Company	Private	Breno	Italy	Renewable energy sector (Wind power, Photovoltaic, Hydroelectric, Interconnection, Ennergy efficiency)		3.2 Offshore wind	<a href="http://3renergia.eu/?lang=en">http://3renergia.eu/?lang=en</a>
1.51	Micoperi Blue Growth srl	Industry	Company	Private	Ravenna	Italy	Algal strains, use in the nutraceutical, pharmaceutical, medical, agricultural field.		2.4 Blue Bio-technologies	<a href="http://www.micoperibg.com/">http://www.micoperibg.com/</a>
1.52	BIOSEARCH srl	Industry	Company	Private	Milan	Italy	Pharmaceuticals & innovative products from marine microalgae		2.4 Blue Bio-technologies	<a href="https://www.biosearchsrl.com/">https://www.biosearchsrl.com/</a>
1.53	Oyster Cosmetic	Industry	Company	Private	Castiglione delle Stiviere	Italy	Cosmetics		2.4 Blue Bio-technologies	<a href="http://www.oystercosmetics.it/">http://www.oystercosmetics.it/</a>
1.54	Tere Group	Industry	Company	Private	Modena	Italy	Bioremediation of chicken manure using microalgae, Biodiesel b20 from microalgae, Oil production from microalgae: cultivation methods in comparison		2.4 Blue Bio-technologies, 3.3 Ocean renewable energy (biomass)	<a href="https://en.teregroup.net/">https://en.teregroup.net/</a>
1.55	Alga & Zyme Factory	Industry	Company	Private	Ferrara	Italy	Blue bio-technologies, A&Z for Cosmetics, A&Z for bioenergies and biomass, A& Z for agriculture and breeding,		2.4 Blue Bio-technologies, 3.3 Ocean renewable energy (biomass)	<a href="https://www.algazymefactory.com/">https://www.algazymefactory.com/</a>
1.56	Fondazione Parco Tecnologico Padano - PTP (Italy)	Industry	Spin-off		Lodi	Italy	Circular economy, optimization of water reuse and recycle, aquaculture/aquaponic and 3rd generation (microalgae) based biorefineries		2.4 Blue Bio-technologies	<a href="https://www.ptp.it/en/homepage">https://www.ptp.it/en/homepage</a>
1.57	Algain Energy Srl	Industry	Company	Public	Verona	Italy	Blue Bio-technologies, species: Haematococcus pluvialis		2.4 Blue Bio-technologies	<a href="http://www.algainenergy.com/">http://www.algainenergy.com/</a>
1.58	T-Elika	Industry	Consultancy	Private	Venice	Italy			Blue growth, EUSAIR	<a href="http://www.t-elika.eu/">http://www.t-elika.eu/</a>
1.59	Blue Energy Cluster – Italian Hub (PELAGOS)	Academia	Cluster/ Technology Platforms			Italy	Blue energy technologies		3.2 Offshore wind, 3.3. Ocean renewable energy	<a href="http://be-cluster.eu/">http://be-cluster.eu/</a>

Mapping - Topic 1

1.60	National Technology Cluster-Blue Italian Growth (BIG)	Academia	Cluster/ Technology Platforms		Italy	Develop a strategic agenda and produce technological roadmaps, Identify the need for infrastructure and investment in training and human capital, Develop public-private investments in research, Promote the sharing of knowledge between the public system and industry, and towards civil society.		3.2 Offshore wind, 3.3 Ocean Renewable energy, 3.6 Marine minerals mining, 2.4 Blue Bio-technologies, Green shipbuilding	<a href="http://www.clusterbig.it/">http://www.clusterbig.it/</a>
1.61	Maritime Technology cluster of Friuli Venezia Giulia (Mare TC FVG)	Academia	Cluster/ Technology Platforms		Monfalcone Italy	Networks, Projects, Innovation, Training, Mapping services			<a href="https://www.marefvg.it">https://www.marefvg.it</a>
1.62	NAVTEC Sicily	Academia	Cluster/ Technology Platforms		Messina Italy	Testing of products, Research and development of product/process, Marketing of innovative technologies, Supporting to spin-off/start-up			<a href="http://www.navtecsicilia.it/en/index.php">http://www.navtecsicilia.it/en/index.php</a>
1.63	Lombardy Energy Cleantech Cluster	Academia	Cluster/ Technology Platforms		Milan Italy	Regional technology cluster for energy and the environment working to support the growth, innovation and competitiveness of production in Lombardy.			<a href="http://www.energycluster.it/en">http://www.energycluster.it/en</a>
1.64	ASTER - Energy & Environment Platform	Academia	Cluster/ Technology Platforms		Emilia-Romagna Italy	Bio fuels & energy efficiency, Blue renewable energy, Blue Growth Industries, Environmental Industries			<a href="https://www.clustercollaboration.eu/cluster-organisations/aster-energy-and-environment-platform">https://www.clustercollaboration.eu/cluster-organisations/aster-energy-and-environment-platform</a>
1.65	DITNE Scarl	Academia	Cluster/ Technology Platforms		Brindisi Italy	Power generation / renewable sources, Nanotechnology, Blue Growth Industries Environmental Industries			<a href="https://www.ditne.it/">https://www.ditne.it/</a>
1.66	Clust-ER Greentech - Emilia Romagna	Academia	Cluster/ Technology Platforms		Bologna Italy	Blue Growth Industries Environmental Industries, Clean Production / Green Technologies Climate Change mitigation			<a href="https://greentech.clust-er.it/soci/">https://greentech.clust-er.it/soci/</a>
1.67	Cluster Spring (Chimica verde)	Academia	Cluster/ Technology Platforms		Milan Italy	Bio fuels & energy efficiency, Sustainable energy & renewables, Blue Growth Industries			<a href="http://www.clusterspring.it/home-page/">http://www.clusterspring.it/home-page/</a>
1.68	CBM (Friuli Venezia Giulia Technological District for Biomedicine)	Academia	Cluster/ Technology Platforms		Trieste Italy	Biopharmaceuticals, Industrial biotechnology, Medical Research			<a href="https://www.cbm.fvg.it/en/about-us">https://www.cbm.fvg.it/en/about-us</a>

Mapping - Topic 1

1.69	Associazione Italiana per lo Studio e le Applicazioni delle Microalghe (AISAM)	Civil society	Association			Italy	Promotion of scientific research and training of young people and supporting companies in the sector, encouraging exchange and cooperation in the production, transformation and use of biomass.		3.3 Ocean renewable energy (algae biomass)	<a href="https://www.aisam-microalghe.it/">https://www.aisam-microalghe.it/</a>
1.70	ASSOBIOTEC	Civil society	Association		Milan	Italy	To encourage and support biotechnology innovation in order to create value, fostering opportunities for economic and employment growth and for cultural and scientific development in the sector.		2.4 Blue Bio-technologies	<a href="https://assobiotec.federchimica.it/en">https://assobiotec.federchimica.it/en</a>
1.71	Marevivo	Civil society	NGO		Delegations (see website)	Italy	Climate change, Promotion of Renewable energy from the sea (waves, tides, currents, etc), Environmental education, Environmental policies, Biodiversity conservation, Pollution			<a href="https://marevivo.it/en/">https://marevivo.it/en/</a>
1.72	WWF Mediterranean	Civil society	NGO	Public		Mediterranean			Blue growth	

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information	Location			Specific characteristics			Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Legal status: public; private; other	City	Country	[RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Website
1.1.	University of Montenegro	Academia	University	Public	Podgorica	Montenegro	Biotechnology, Power systems & Automatic Control, Maritime Engineering, Mechanical Engineering, Experimental Biology & Biotechnology, Biological, ecological, taxonomic and hydrographical research of the marine life, Bio-security	[a]Faculty of Biotechnical [b]Faculty of Electrical Engineering [c]Faculty of Maritime Studies [d]Faculty of Mechanical Engineering [e] Faculty of Sciences & Mathematics [f] Institute of Marine Biology	2.4 Blue Bio-technologies, 6.2 Environmental monitoring, Energy technologies/Maritime technologies (not specified)	[a] <a href="https://www.ucg.ac.me/btf">https://www.ucg.ac.me/btf</a> [b] <a href="https://www.ucg.ac.me/etf">https://www.ucg.ac.me/etf</a> [c] <a href="https://www.ucg.ac.me/pfkotor">https://www.ucg.ac.me/pfkotor</a> [d] <a href="https://www.ucg.ac.me/mf">https://www.ucg.ac.me/mf</a> [e] <a href="https://www.ucg.ac.me/pmf">https://www.ucg.ac.me/pmf</a> [f] <a href="https://www.ucg.ac.me/fakultet/35">https://www.ucg.ac.me/fakultet/35</a>
1.2	BIO-ICT CENTRE OF EXCELLENCE	Academia	Centre of Excellence		Podgorica	Montenegro	Exploring capacities towards unlocking & utilizing potential of the Montenegrin South Adriatic Sea and inland rural areas, bringing innovative ICT based solutions in various bioeconomy sectors, related to food security, blue growth, bio-based innovation for sustainable goods and services.		2.4 Blue Bio-technologies	<a href="http://www.bio-ict.ac.me/index.php">http://www.bio-ict.ac.me/index.php</a>
1.3	Ministry of Sustainable development and Tourism	Government	Public Authority	Public	Podgorica	Montenegro				<a href="http://www.mrt.gov.me">www.mrt.gov.me</a>
1.4	Ministry of Transport and Maritime Affairs	Government	Public Authority	Public	Podgorica	Montenegro				<a href="http://www.msp.gov.me">www.msp.gov.me</a>
1.5	Agency for Nature and Environment Protection	Government	Public Authority	Public	Podgorica	Montenegro				<a href="http://www.epa.org.me">www.epa.org.me</a>
1.6	Science & Technology Park of Montenegro	Academia	Cluster/ Technology Platforms		Podgorica	Montenegro	Support of entrepreneurial companies, Accelerate innovative products in the private sectors, Encouraging cooperation with business and academic communities, Creating simulating environment that will foster innovations and cooperation			<a href="https://www.nipark.me/en/">https://www.nipark.me/en/</a>

Mapping - Topic 1

1.7	Green Home	Civil society	NGO		Podgorica	Montenegro	Energy efficiency, Alternative energy sources, biodiversity, freshwater and wetlands, agriculture, recycling, pollution and waste management, ecotourism and sustainable development at local, national and mediterranean level.			<a href="http://www.greenhome.co.me/index.php?ezik=eng">http://www.greenhome.co.me/index.php?ezik=eng</a>
1.8	REC Montenegro (Regional Environmental Center)	Civil society	Other		Podgorica	Montenegro	Contribute to transparency, sustainability and European integration, implementing projects that build resilience to climate change, promote clean energy solutions, champion sustainable mobility and strengthen environmental governance in Central and Eastern Europe and beyond.			<a href="http://montenegro.rec.org/index-eng.php">http://montenegro.rec.org/index-eng.php</a>

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	University of Ljubljana	Academia	University	Public	Ljubljana	Slovenia	Green sea mobility, Bio-security, Blue Bio-technologies, RES, (Marine) mining	[a] Faculty of Maritime Studies & Transport [b] Biotechnical Faculty [c] Faculty of Electrical Engineering/ Lab. Of Energy Policy [d] Faculty of Natural Sciences & Engineering/Dept. of Geotechnology, Mining & Environment [e] Faculty of Pharmacy	0.1 Shipbuilding (Green sea mobility), 6.2 Environmental monitoring, 2.4 Blue Bio-technologies, 3.2 (Offshore) wind, 3.6 (Marine) minerals mining (not specified)	[a] <a href="https://www.fpp.uni-lj.si/en/research/">https://www.fpp.uni-lj.si/en/research/</a> [b] <a href="http://www.bf.uni-lj.si/en/deans-office/news/">http://www.bf.uni-lj.si/en/deans-office/news/</a> [c] <a href="https://lest.fe.uni-lj.si/">https://lest.fe.uni-lj.si/</a> [d] <a href="https://www.ntf.uni-lj.si/ogro/en/about-department/general-information/presentation/">https://www.ntf.uni-lj.si/ogro/en/about-department/general-information/presentation/</a> [e] <a href="http://www.ffa.uni-lj.si/en/research">http://www.ffa.uni-lj.si/en/research</a>
1.2	University of Maribor	Academia	University	Public	Maribor	Slovenia	Blue Bio-technology, (Blue) energy technologies,	[a] Faculty of Energy Technology [b] Faculty of Mechanical Engineering [c] Faculty of Agriculture and Life Sciences (FALS)	2.4 Blue-Bio-technologies, 3.2 (Offshore) wind (not specified),	[a] <a href="https://www.fe.um.si/en/home-en.html">https://www.fe.um.si/en/home-en.html</a> [b] <a href="https://www.fs.um.si/en/">https://www.fs.um.si/en/</a> [c] <a href="http://fkbv.um.si/index.php/en/research-development-and-innovations">http://fkbv.um.si/index.php/en/research-development-and-innovations</a>
1.3	National Institute of Chemistry	Academia	Research Organisation	Public	Ljubljana	Slovenia	Blue Bio technologies	Laboratory of Catalysis and Chemical Reaction Engineering	2.4 Blue Bio-technologies, 3.3 Ocean renewable energy (biomass)	<a href="https://www.ki.si/index.php?id=191&amp;L=1">https://www.ki.si/index.php?id=191&amp;L=1</a>
1.4	National Institute of Biology (NIB)	Academia	Research Organisation	Public	Ljubljana	Slovenia	Blue Bio-technologies, Bio-security, Marine biology, Monitoring of sea water	[a] Department of Bio-technology & Systems Biology [b] Marine Biology Station Piran	2.4 Blue Bio-technologies, 6.2 Environmental monitoring	[a] <a href="https://www.nib.si/eng/index.php/departments/departments-of-biotechnology-and-systems-biology">https://www.nib.si/eng/index.php/departments/departments-of-biotechnology-and-systems-biology</a> [b] <a href="https://www.nib.si/mbp/en/">https://www.nib.si/mbp/en/</a>
1.5	Geological Survey of Slovenia (GeoZS)	Academia	Research Organisation/Institute	Public	Ljubljana	Slovenia	Mineral resources, Hydrogeology, Environmental geochemistry		3.1 Offshore oil & gas, 3.5 Aggregates mining, 3.6 Marine minerals mining	<a href="http://www.geo-zs.si">http://www.geo-zs.si</a>
1.6	Jozef Stefan Institute	Academia	Research Organization	Public	Ljubljana	Slovenia	Biotechnology, Pharmaceutical biotechnology, Energy efficiency, Renewable energy sources, Analysis of energy development	[a] Department of Biotechnology [b] Energy efficiency centre [c] Department of inorganic chemistry and technology	2.4 Blue Bio-technologies, RES (not specified), 0.1 Shipbuilding (Green sea mobility)	[a] <a href="https://www.ijs.si/ijsw/Biotehnologija">https://www.ijs.si/ijsw/Biotehnologija</a> [b] <a href="https://ceu.ijs.si/en/">https://ceu.ijs.si/en/</a> [c] <a href="https://www.ijs.si/ijsw/Inorganic%20Chemistry%20and%20Technology%20K1">https://www.ijs.si/ijsw/Inorganic%20Chemistry%20and%20Technology%20K1</a>
1.7	Goriška local energy agency – GOLEA	Academia	Institute	Public	Nova Gorica	Slovenia	Renewable Energy Sources, Energy project management, Feasibility studies for energy projects (Participation in MAFESTRALE Interreg)		3.2 Offshore wind, 3.3 Ocean renewable energy	<a href="https://www.golea.si/">https://www.golea.si/</a>
1.8	Regional Development Center Koper	Government	Public Authority	Public		Slovenia			Blue growth	
1.9	Ministry of Agriculture, Forestry and Food	Government	Public Authority	Public		Slovenia			Blue growth, EUSAIR	
1.10	Port of Koper	Industry	Company	Public	Koper	Slovenia	Port system, Logistic solutions, Sustainable development		0.1 Shipbuilding (Green sea mobility)	<a href="https://luka-kp.si/">https://luka-kp.si/</a>



Mapping - Topic 1

1.11	Resalta TM	Industry	Company	Private	Ljubljana - Črnuče	Slovenia	Energy efficiency, Renewable energy sources, Heat pumps		3.3 Ocean renewable energy (Sea water thermal energy-Sea Water Heat Pumps)	<a href="https://www.resalta.com/technologies-solutions">https://www.resalta.com/technologies-solutions</a>
1.12	AlgEn	Industry	Company	Private	Ljubljana	Slovenia	Blue Bio-technologies		2.4 Blue Bio-technologies, 3.3 Ocean renewable energy (biomass)	<a href="http://www.algal-energy.eu">http://www.algal-energy.eu</a>
1.13	ACIESBIO	Industry	Company	Private	Ljubljana	Slovenia	(Blue) Bio-technologies, synthetic organic chemistry, microbial biotech		2.4 (Blue) Bio-technologies	<a href="https://www.aciesbio.com/">https://www.aciesbio.com/</a>
1.14	Technology Park of Ljubljana	Academia	Cluster/ Technology Platforms		Ljubljana	Slovenia	Digital innovation in healthcare, Start-up acceleration, Innovation infrastructure		2.4 Blue Bio-technologies , 0.1 Shipbuilding (Green sea mobility)	<a href="https://www.tp-lj.si/en">https://www.tp-lj.si/en</a>
1.15	AE-ROBO-NET	Academia	Cluster/ Technology Platforms			Slovenia	Marine biotechnology, Automated driverless vehicles, marine biology (sea bed cleaning)		2.4 Blue Bio-technologies	[a] <a href="https://www.clustercollaboration.eu/cluster-organisations/ae-robo-net">https://www.clustercollaboration.eu/cluster-organisations/ae-robo-net</a> [b] <a href="http://www.ae-robo.net">http://www.ae-robo.net</a>
1.16	TECES-Slovenian Energy Cluster	Academia	Cluster/ Technology Platforms		Maribor	Slovenia	Energy management, Power generation / renewable sources, Generators, electric engines and power converters, Environmental Industries		2.4 Shipbuilding (Green sea mobility), RES (not specified)	<a href="https://www.teces.si/sl/">https://www.teces.si/sl/</a>
1.17	Tovarna podjetij	Academia	Incubator		Maribor	Slovenia	Protection of intellectual property and finding solutions for its successful commercialization in cooperation with existing companies (licensing, sale of intellectual property rights, contract research and research in cooperation with industry), creating and developing			<a href="https://www.tovarnapodjetij.org/">https://www.tovarnapodjetij.org/</a>

## Mapping - Topic 1

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority,	Location Legal status: public; private; other	City	Country	Specific characteristics [RTD] Activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
1.1	University of Novi Sad	Academia	University	Public	Novi Sad	Serbia	Food & feed science and technology, Blue-Bio-technology	Institute of Food Technology (FINS)	2.4 Blue Bio-technologies	<a href="http://www.fins.uns.ac.rs/">http://www.fins.uns.ac.rs/</a>
1.2	University of Belgrade	Academia	University	Public	Belgrade	Serbia				<a href="http://www.bg.ac.rs/en/index.php">http://www.bg.ac.rs/en/index.php</a>
1.3	INTERSECTION. Centre for Science and Innovation	Civil society	Civil society association	Public	Belgrade	Serbia	Promote responsible research and innovation, quality education, evidence based policies and good governance and strengthen the link between science and society, with		2.4 Blue Bio-technologies	<a href="https://www.intersection.rs/">https://www.intersection.rs/</a>
1.4	Zlatibor Regional Development Agency	Government	Regional development institution		Užice	Serbia	Contribution to the regional sustainable development through activities in economic, social and environment sector. (Participation in SHIPMent Interreg ADRION)			<a href="http://www.rrazlatibor.rs/english/index.php">http://www.rrazlatibor.rs/english/index.php</a>
1.5	World Wide Fund for Nature – Serbia	Civil society	NGO		Belgrade	Serbia	Promotion of WWF's global conservation priorities at both the national and regional levels. The activities of WWF Adria			
1.6	REC Serbia (Regional Environmental Center)	Civil society	Other		Belgrade	Serbia	Strengthening institutions for sustainable development, Capacity building of stakeholders and assisting partnerships, Sustainable management and use of natural resources, Integration of environmental concerns			<a href="http://serbia.rec.org/index-eng.php">http://serbia.rec.org/index-eng.php</a>

**Mapping - Topic 2**

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority 4. Cluster etc (drop down menu)	Location Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Sources Website
2.1	University of Tirana	Academia	1. University/ Polytechnic	public	Tirana	Albania		<a href="https://sites.google.com/a/fshn.edu.al/departamenti-i-biologjisee/">https://sites.google.com/a/fshn.edu.al/departamenti-i-biologjisee/</a>
2.2	Agriculture University of Tirana	Academia	1. University/ Polytechnic	public	Tirana	Albania		<a href="http://zp.aula.gr/en/lh/personnel">http://zp.aula.gr/en/lh/personnel</a>
2.3	Agriculture University of Tirana	Academia	1. University/ Polytechnic	public	Tirana	Albania		<a href="https://ubt.edu.al/sq/fakulteti-i-mjekesise-veterinare/">https://ubt.edu.al/sq/fakulteti-i-mjekesise-veterinare/</a>
2.4	Agriculture University of Tirana	Academia	1. University/ Polytechnic	public	Tirana	Albania		<a href="https://sites.google.com/a/ubt.edu.al/fbm_en/">https://sites.google.com/a/ubt.edu.al/fbm_en/</a>
2.5	Aleksandër Moisiu University of Durrës	Academia	1. University/ Polytechnic	public	Durrës	Albania		<a href="http://www.uamd.edu.al">http://www.uamd.edu.al</a>
2.6	Mediterranean University of Albania (MUA) - Mesdheu Center Research & Development	Academia	1. University/ Polytechnic	public	Tirana	Albania		<a href="https://www.umsh.edu.al/">https://www.umsh.edu.al/</a>
2.7	Polytechnic University of Tirana	Academia	1. University/ Polytechnic	public	Tirana	Albania		<a href="https://www.upt.al/en/">https://www.upt.al/en/</a>
2.8	Chamber of Commerce and Industry of Vlora Region	Government	16. Chamber	public	Vlorë	Albania		<a href="https://cb-ecofish.eu/portfolio/ecofishpartner3/">https://cb-ecofish.eu/portfolio/ecofishpartner3/</a>
2.9	Association of Social Education & Environment Protection	Civil Society	9. Association or Federation	other	Tirana	Albania		<a href="http://see-net.net/en/members/social_education_environment_protection_seep">http://see-net.net/en/members/social_education_environment_protection_seep</a>
2.10	Municipality of Durres	Government	18. Municipality	public	Durrës	Albania		<a href="http://www.reactcitizen.eu/el/english-municipality-of-durres-albania/">http://www.reactcitizen.eu/el/english-municipality-of-durres-albania/</a>
2.11	Hydra	Civil Society	6. NGO	other	Tirana	Albania		<a href="http://hydra.org.al/">http://hydra.org.al/</a>
2.12	SEEP - Social Education & Environment Protection	Civil Society	6. NGO	other	Vlorë	Albania		<a href="https://www.seep.al/">https://www.seep.al/</a>
2.13	KRONOS	Industry	10. Company	private	Tirana	Albania		<a href="https://kronos.al">https://kronos.al</a>

**Mapping - Topic 2**

Nr			General Information	Location				Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority 4. Cluster etc (drop down menu)	Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Website
2.1	Centre for economic, technological and environmental development (CETEOR) Sarajevo	Academia	1. University	public	Sarajevo	Bosnia & Herzegovina		<a href="http://www.ceteor.ba">http://www.ceteor.ba</a>
2.2	University of Sarajevo	Academia	1. University	public	Sarajevo	Bosnia & Herzegovina	Faculty : Natural Sciences and Mathematics	<a href="https://www.unsa.ba/">https://www.unsa.ba/</a>
2.3	University of Sarajevo	Academia	1. University	public	Sarajevo	Bosnia & Herzegovina	Laboratory for Molecular Genetics of Natural Resources	<a href="http://www.ingeb.unsa.ba">www.ingeb.unsa.ba</a>
2.4	University of Banja Luka	Academia	University	Public	Banja Luka	Bosnia & Herzegovina	Faculty of Natural Sciences and Mathematics	<a href="https://pmf.unibl.org/">https://pmf.unibl.org/</a>
2.5	University of Banja Luka	Academia	University	Public	Banja Luka	Bosnia & Herzegovina	Faculty of Agriculture	<a href="http://www.agro.unibl.org">www.agro.unibl.org</a>
2.6	University of Banja Luka	Academia	University	Public	Banja Luka	Bosnia & Herzegovina	Institute of Genetic rResources	<a href="http://www.igr.unibl.org">www.igr.unibl.org</a>
2.7	Ministry of Agriculture, Forestry and Water Managment	Government	Public Authority	Public	Banja Luka	Bosnia & Herzegovina	Department for agriculture, food industry and rural development	<a href="https://www.vladars.net/eng/vlada/ministries/MAFW/aboutministry/Pages/default.aspx">https://www.vladars.net/eng/vlada/ministries/MAFW/aboutministry/Pages/default.aspx</a>
2.8	Sport Fishing Federation of Republic of Srpska	Civil Society	NGO	Public	Banja Luka	Bosnia & Herzegovina	Memebers/Societies	<a href="https://srsrs.com/">https://srsrs.com/</a>

**Mapping - Topic 2**

Nr			General Information	Location				Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority 4. Cluster etc (drop down menu)	Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Website
2.1	Brodarski institute Ltd	Academia	2. Research Organisation			Croatia		<a href="http://www.hrbi.hr/">http://www.hrbi.hr/</a>
2.2	Croatian Agency for SMEs, Innovation and Investments	Civil Society	15. SME promotion agency	other	Zagreb	Croatia		<a href="https://hamagbicro.hr/">https://hamagbicro.hr/</a>
2.3	Croatian Veterinary Institute	Academia	2. Research Organisation			Croatia		<a href="http://www.veinst.hr/">http://www.veinst.hr/</a>
2.4	Institute of Oceanography and Fisheries - IOF	Academia	2. Research Organisation			Croatia		<a href="http://www.izor.hr/">http://www.izor.hr/</a>
2.5	Public Institution for the Management of Protected Natural Areas of Dubrovnik-Neretva County	Government	12. Protected Areas Management Body	Public		Croatia		<a href="https://zastita-priode-dnz.hr/">https://zastita-priode-dnz.hr/</a>
2.6	Ruder Boskovic Institute Centre for Marine Research	Academia	2. Research Organisation		Zagreb	Croatia		<a href="https://www.irb.hr/eng/Divisions/Center-for-Marine-Research">https://www.irb.hr/eng/Divisions/Center-for-Marine-Research</a>
2.7	Ravnatelj Ruđer Bošković Institute	Academia	2. Research Organisation		Zagreb	Croatia		<a href="http://same15.irb.hr">http://same15.irb.hr</a>
2.8	Science and Technology Park of the University of Rijeka	Academia	11. Science & Technology Park	Public	Rijeka	Croatia		<a href="http://iuri.uniri.hr/const_func/science-and-technology-park-stepri/">http://iuri.uniri.hr/const_func/science-and-technology-park-stepri/</a>
2.9	Teaching Institute For Public Health, Primorje-Gorski Kotar County	Academia	13. Other	Public		Croatia		<a href="http://www.zzjzpgz.hr/">http://www.zzjzpgz.hr/</a>
2.10	University of Rijeka	Academia	1. University	public		Croatia		<a href="https://uniri.hr/">https://uniri.hr/</a>
2.11	University of Rijeka - Faculty of tourism and hospitality management	Academia	1. University	public		Croatia		<a href="http://iuri.uniri.hr/const_edu/faculty-of-tourism-and-hospitality-management/">http://iuri.uniri.hr/const_edu/faculty-of-tourism-and-hospitality-management/</a>
2.12	University of Rijeka - Faculty of Maritime Studies	Academia	1. University	public		Croatia		<a href="https://www.pfri.uniri.hr/web/en/index.php">https://www.pfri.uniri.hr/web/en/index.php</a>
2.13	University of Split	Academia	1. University	public		Croatia		<a href="http://www.unist.hr/">http://www.unist.hr/</a>
2.14	University of Zadar	Academia	1. University	public		Croatia		<a href="http://www.unizd.hr/">http://www.unizd.hr/</a>

**Mapping - Topic 2**

2.15	University of Zagreb	Academia	1. University/ Polytechnic	public		Croatia	Faculty of Science	<a href="http://www.unizg.hr/">http://www.unizg.hr/</a>
2.16	Pinna Nobilis FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.lagur-pinnanobilis.hr">http://www.lagur-pinnanobilis.hr</a>
2.17	Istarski Svoj FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://lagur-istarskisvoj.hr/">http://lagur-istarskisvoj.hr/</a>
2.18	Istarska Batana FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="https://www.lagur-istarska-batana.hr/natjecaji">https://www.lagur-istarska-batana.hr/natjecaji</a>
2.19	Alba FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://lagur-alba.hr/natjecaji.php?f_type=najavlien&amp;lq=hr">http://lagur-alba.hr/natjecaji.php?f_type=najavlien&amp;lq=hr</a>
2.20	Tunera FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.lagur-tunera.hr">http://www.lagur-tunera.hr</a>
2.21	Vela Vrata FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://vela-vrata.hr/">http://vela-vrata.hr/</a>
2.22	Tramuntana FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="https://saznomoli.com/lrsr-2014-2020">https://saznomoli.com/lrsr-2014-2020</a>
2.23	Tri Mora FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.lagurtrimora.hr/">http://www.lagurtrimora.hr/</a>
2.24	Plodovi Mora FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.lagurplodovimora.hr/">http://www.lagurplodovimora.hr/</a>
2.25	Lostura FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.flag-lostura.hr/">http://www.flag-lostura.hr/</a>

**Mapping - Topic 2**

2.26	Galeb FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.lagur-galeb.hr/natjecaji/">http://www.lagur-galeb.hr/natjecaji/</a>
2.27	Brac FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.lagurbrac.hr">http://www.lagurbrac.hr</a>
2.28	Skoji FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="http://www.flag-skoji.hr">http://www.flag-skoji.hr</a>
2.29	Juzni Jadran FLAG	Government	7. Community-led local development (CLLD) organisation	Public		Croatia		<a href="https://flagjuznijadran.hr/natjecaji/">https://flagjuznijadran.hr/natjecaji/</a>
2.30	Public Institution RERA SD for Coordination and Development of Split Dalmatia County	Government	3. Public Authority	Public		Croatia	Project Preparation and Implementation Department in close cooperation with Rural Development Department	<a href="http://www.defishgear.net/partners/croatia/public-institution-rera">http://www.defishgear.net/partners/croatia/public-institution-rera</a>
2.31	CROATIAN MINISTRY OF AGRICULTURE (MOFA)	Government	3. Public Authority	Public	Zagreb	Croatia		<a href="https://portal.cor.europa.eu/divisionpowers/Pages/Croatia-Agriculture.aspx">https://portal.cor.europa.eu/divisionpowers/Pages/Croatia-Agriculture.aspx</a>
2.32	Association for Nature, Environment and Sustainable Development Sunce	Civil Society	6. NGO	other		Croatia		<a href="https://ec.europa.eu/environment/nature/natura2000/platform/organizations/0427_en.htm">https://ec.europa.eu/environment/nature/natura2000/platform/organizations/0427_en.htm</a>
2.33	Mariculture Cluster	Civil Society	4. Cluster	other		Croatia		<a href="https://studylib.net/doc/5469764/cluster-mariculture">https://studylib.net/doc/5469764/cluster-mariculture</a>
2.34	Friškina Ltd.	Industry	10. Company	Private		Croatia		<a href="https://www.dnb.com/business-directory/company-profiles/friskina_doo.ca61cf981ded3411747411fbd8bccb93.html">https://www.dnb.com/business-directory/company-profiles/friskina_doo.ca61cf981ded3411747411fbd8bccb93.html</a>
2.35	AZRRI– Agency for Rural Development of Istria Ltd. Pazin	Government	20. Other	Public		Croatia		<a href="http://www.azrri.hr/index.php?id=52&amp;L=1">http://www.azrri.hr/index.php?id=52&amp;L=1</a>
2.36	Istrian Development Agency – Ida Ltd.	Government	20. Other	Public		Croatia		<a href="https://www.developmentaid.org#!/donors/view/5558/ida-istrian-development-agency">https://www.developmentaid.org#!/donors/view/5558/ida-istrian-development-agency</a>
2.37	Agency for Rural Development of Zadar County - AGRRA	Government	20. Other	Public		Croatia		<a href="http://www.agrra.hr/en">http://www.agrra.hr/en</a>
2.38	Zadar County	Government	17. Regional Authority	Public	Zadar	Croatia		<a href="https://www.saito-youth.net/tools/otlas-partner-funding/organisation/zadar">https://www.saito-youth.net/tools/otlas-partner-funding/organisation/zadar</a>

**Mapping - Topic 2**

2.39	Fisherman's Cooperative Omega	Civil Society	9. Association or Federation			Croatia		<a href="https://www.rz-omega3.hr/en">https://www.rz-omega3.hr/en</a>
2.40	Fishing Cooperative Istra	Civil Society	9. Association or Federation			Croatia		<a href="https://www.italy-croatia.eu/web/prizefish/-/partner-fishing-cooperative-istra">https://www.italy-croatia.eu/web/prizefish/-/partner-fishing-cooperative-istra</a>
2.41	Zadar County Development Agency Zadra Nova	Government	17. Regional Authority	Public	Zadar	Croatia		<a href="https://www.interreg-central.eu/Content.Node/ZADRA-COUNTY-DEVELOPMENT-AGENCY-ZADRA-NOVA-(CROATIA).html">https://www.interreg-central.eu/Content.Node/ZADRA-COUNTY-DEVELOPMENT-AGENCY-ZADRA-NOVA-(CROATIA).html</a>
2.42	County of Split-Dalmatia	Government	17. Regional Authority	Public	Split	Croatia		<a href="https://www.dalmacija.hr/en/">https://www.dalmacija.hr/en/</a>
2.43	Cromaris	Industry	20. Other	Private		Croatia		<a href="https://cromaris.hr/en/">https://cromaris.hr/en/</a>
2.44	WWF Adria	Civil Society	6. NGO	other		Croatia		<a href="https://www.wwfadria.org/">https://www.wwfadria.org/</a>
2.45	Stenella consulting d.o.o.	Industry	10. Company	Private	Zagreb	Croatia		<a href="http://www.stenella-consulting.hr">www.stenella-consulting.hr</a>
2.46	Croatian Chamber of Economy	Civil Society	9. Association or Federation	Private	Zagreb	Croatia		<a href="http://www.hgk.hr/">http://www.hgk.hr/</a>
2.47	HOK-Croatian Chamber of Trade and Crafts	Civil Society	9. Association or Federation	Private	Zagreb	Croatia		<a href="http://www.hok.hr/">http://www.hok.hr/</a>
2.48	HSSRM- Croatian Federation of Sport Fishing on Sea	Civil Society	9. Association or Federation	Private	Rijeka	Croatia		
2.49	Trawlers coordination	Civil Society	9. Association or Federation	Private	Split	Croatia		



**Mapping - Topic 2**

Nr			General Information	Location				Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research	Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Website
2.1	National and Kapodistrian University of Athens	Academia	1. University/ Polytechnic	public	Athens	Greece	School of Science, Faculty of Biology, Department of Zoology - Marine Biology	<a href="http://en.biol.uoa.gr/departments/department-of-zoology-marine-biology.html">http://en.biol.uoa.gr/departments/department-of-zoology-marine-biology.html</a>
2.2	National and Kapodistrian University of Athens	Academia	1. University/ Polytechnic	public	Athens	Greece	School of Health Sciences, Faculty of Pharmacy, Department of Pharmacognosy & Chemistry of Natural Products	<a href="http://en.pharm.uoa.gr/personnel/faculty-members/pharmacognosy-chemistry-of-natural-products.html">http://en.pharm.uoa.gr/personnel/faculty-members/pharmacognosy-chemistry-of-natural-products.html</a>
2.3	Agricultural University of Athens	Academia	1. University/ Polytechnic	public	Athens	Greece	Faculty of Animal Science and Aquaculture, Department of Applied Hydrobiology	<a href="http://zp.aua.gr/en/lh/personnel">http://zp.aua.gr/en/lh/personnel</a>
2.4	University of the Aegean	Academia	1. University/ Polytechnic	public	Lesvos Island	Greece	Department of Oceanography and Marine Biosciences	<a href="http://www.mar.aegean.gr/people/faculty/faculty.php">http://www.mar.aegean.gr/people/faculty/faculty.php</a>
2.5	Aristotle University of Thessaloniki	Academia	1. University/ Polytechnic	Public	Thessaloniki	Greece	Faculty of Science, School of Biology	<a href="http://www.bio.auth.gr/v1/en/content/undergraduate-studies-0">http://www.bio.auth.gr/v1/en/content/undergraduate-studies-0</a>
2.6	Aristotle University of Thessaloniki	Academia	1. University/ Polytechnic	Public	Thessaloniki	Greece	Faculty of Agriculture, Forestry and Natural Environment, School of Agriculture	<a href="http://www.agro.auth.gr/departments/animal-production">http://www.agro.auth.gr/departments/animal-production</a>
2.7	Aristotle University of Thessaloniki	Academia	1. University/ Polytechnic	Public	Thessaloniki	Greece	Faculty of Health Sciences, School of Veterinary Medicine, Ichthyology Lab	<a href="http://www.vet.auth.gr/ichthyology/index_en.htm">http://www.vet.auth.gr/ichthyology/index_en.htm</a>
2.8	University of Crete	Academia	1. University/ Polytechnic	Public	Heraklio	Greece	Department of Biology	<a href="http://www.emm-aces.org/?page_id=1203">http://www.emm-aces.org/?page_id=1203</a>
2.9	University of Patras	Academia	1. University/ Polytechnic	Public	Patras	Greece	School of Natural Sciences, Department of Biology, Division of Animal Biology	<a href="http://www.biology.upatras.gr/index.php?option=com_content&amp;view=category&amp;id=60&amp;Itemid=374">http://www.biology.upatras.gr/index.php?option=com_content&amp;view=category&amp;id=60&amp;Itemid=374</a>
2.10	University of Patras	Academia	1. University/ Polytechnic	Public	Patras	Greece	School of Agricultural Sciences, Department of Biosystems & Agricultural Engineering, Department of Animal Production, Fisheries & Aquaculture	<a href="https://www.upatras.gr/el">https://www.upatras.gr/el</a>

**Mapping - Topic 2**

2.11	University of Thessaly	Academia	1. University/ Polytechnic	public	Karditsa	Greece	Faculty of Veterinary Science, Department of Aquaculture and Fish Diseases	<a href="http://www.vet.uth.gr/english/">http://www.vet.uth.gr/english/</a>
2.12	University of Thessaly	Academia	1. University/ Polytechnic	public	Volos	Greece	School of Agricultural Sciences, Department of Ichthyology and Aquatic Environment	<a href="http://www.apae.uth.gr/index.php?option=com_content&amp;view=article&amp;id=65&amp;Itemid=82&amp;lang=en">http://www.apae.uth.gr/index.php?option=com_content&amp;view=article&amp;id=65&amp;Itemid=82&amp;lang=en</a>
2.13	University of Ioannina	Academia	1. University/ Polytechnic	public	Ioannina	Greece	Department of Biological Applications & Technology	<a href="http://bat.uoi.gr/eng/index.php">http://bat.uoi.gr/eng/index.php</a>
2.14	Hellenic Centre for Marine Research	Academia	2. Research Organisation	public	Anavyssos, Heraclion	Greece	Institute of Marine Biology, Biotechnology and Aquaculture (IMBBC), Institute of Oceanography (IO), Institute of Marine Biological Resources and Inland Waters (IMBRIW)	<a href="https://www.hcmr.gr/en/">https://www.hcmr.gr/en/</a>
2.15	Fisheries Research Institute (FRI) belongs to the HELLENIC Agricultural Organization-DEMETER (ELGO – DEMETER)	Academia	2. Research Organisation	public	Kavala	Greece		<a href="https://inale.gr/en/home_inale_en/">https://inale.gr/en/home_inale_en/</a>
2.16	Ministry of Rural Development and Food (DG Fisheries)	Government	3. Public authority	Public	Athens	Greece		<a href="http://www.alieia.minagric.gr/">http://www.alieia.minagric.gr/</a>
2.17	PEPMA	Civil Society	9. Association or Federation			Greece		<a href="http://www.pepma-net.gr/">http://www.pepma-net.gr/</a>
2.18	FGM	Civil Society	9. Association or Federation			Greece		<a href="https://www.fgm.com.gr/english/index.php">https://www.fgm.com.gr/english/index.php</a>
2.19	PANEMI "UNION OF GREEK AQUACULTURE MEDIUM COMPANIES"	Civil Society	9. Association or Federation			Greece		<a href="http://www.panemmi.gr/">http://www.panemmi.gr/</a>
2.20	Hellenic Aquaculture Producers Organization (H.A.P.O.)	Civil Society	8. Producer Organisation			Greece		<a href="https://fishfromgreece.com/">https://fishfromgreece.com/</a>
2.21	Hellenic Technology Platform for Aquaculture (HE.TE.P.A)	Academia	5. RTD Platform	other		Greece		<a href="https://eatip.eu/?p=1939">https://eatip.eu/?p=1939</a>
2.22	Greek Cold Storage & Logistics Association (PASEKT)	Civil Society	9. Association or Federation	Private		Greece		<a href="http://www.cold.org.gr/">http://www.cold.org.gr/</a>
2.23	Association of the Greek Mussel Farmers (SEMYO)	Civil Society	9. Association or Federation			Greece		
2.24	Panhellenic Network of Coastal Fishing Associations	Civil Society	9. Association or Federation			Greece		

**Mapping - Topic 2**

2.25	Pan-Hellenic Association of Coastal Professional Fishing Vessels (Panepes)	Civil Society	9. Association or Federation			Greece		
2.26	OSTRIA SA	Civil Society	8. Producer Organisation			Greece		<a href="https://ostria-mussels.eu/el/">https://ostria-mussels.eu/el/</a>
2.27	Evros FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.28	Rodopi FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.29	Kavala City FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.30	Thassos and Kavala prefecture FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.31	Halkidiki FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		<a href="http://www.anetxa.gr">http://www.anetxa.gr</a>
2.32	East Thessaloniki FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.33	West Thessaloniki FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.34	Pieria FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		<a href="http://www.pieriki-anaptixiaki.gr">http://www.pieriki-anaptixiaki.gr</a>
2.35	Kozani FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.36	Ipeirios - Ioannina FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.37	Ionian Islands FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		

**Mapping - Topic 2**

2.38	South Ipeiros Amvrakikoy FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.39	Trixonida FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.40	Aitoliki FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.41	Ahaia FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.42	Olympias FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.43	Messinia FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.44	Parnonas FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.45	Attiki island FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.46	Central and North Evia FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.47	South Evia & Skyros FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.48	Pillio FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.49	Lemnos FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.50	Lesvos FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		

**Mapping - Topic 2**

2.51	Chios FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.52	Samos FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.53	Dodecanese FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.54	Cyclades FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.55	Chania FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.56	Rethymno FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		
2.57	Crete Messara Gulf FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		<a href="http://www.anher.gr">www.anher.gr</a>
2.58	Northern and South East Crete FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		<a href="http://www.anher.gr">http://www.anher.gr</a>
2.59	Lassithi FLAG	Government	7. Community-led local development (CLLD) organisation	public		Greece		<a href="http://www.anlas-leader.gr">www.anlas-leader.gr</a>
2.60	Central Market and Fishery Organizations (CMFO SA)	Industry	10. Company	Private		Greece		<a href="https://www.okaa.gr/">https://www.okaa.gr/</a>
2.61	Blue Career Centre of Eastern Mediterranean and Black Sea (MENTOR) - Greek Branch	Academia	14. Blue Career and skills Centre	public	Agricultural University of Athens	Greece		<a href="http://www.bluecareers.org/">http://www.bluecareers.org/</a>
2.62	WWF	Civil Society	6. NGO	other	Athens	Greece		<a href="https://www.wwf.gr/en/areas/marine">https://www.wwf.gr/en/areas/marine</a>
2.63	Archipelagos Institute of Marine Conservation	Civil Society	6. NGO	other	Pythagorio 83 103 Samos	Greece		<a href="https://archipelago.gr/en/our-work/marine-conservation/fisheries/">https://archipelago.gr/en/our-work/marine-conservation/fisheries/</a>
2.64	Foundation for Research and Technology – Hellas PRAXI Network	Academia	15. SME promotion agency			Greece		<a href="https://praxinetwork.gr/en/newsitem/836">https://praxinetwork.gr/en/newsitem/836</a>
2.65	MEDASSET	Civil Society	6. NGO	other		Greece		<a href="https://www.medasset.org/">https://www.medasset.org/</a>
2.66	Management Agency of Zakynthos National Marine Park	Government	12. Protected Areas Management Body	Public	Zakynthos	Greece		<a href="http://nmp-zak.org/en">http://nmp-zak.org/en</a>

**Mapping - Topic 2**

2.67	Chamber of Thesprotia	Civil Society	16. Chamber	public		Greece		<a href="http://www.e-thesprotias.gr/thesprotia/shared/index.jsp?context=101">http://www.e-thesprotias.gr/thesprotia/shared/index.jsp?context=101</a>
2.68	Research Centre of University of Piraeus	Academia	1. University/ Polytechnic	public	Piraeas	Greece		<a href="https://www.unipi.gr/unipi/en/">https://www.unipi.gr/unipi/en/</a>
2.69	Veterinary Research Institute, Hellenic Agricultural Organisation DEMETER (ELGO-DEMETER)	Academia	2. Research Organisation	public	Thessaloniki	Greece	Veterinary Research Institute, Laboratory of Fish, Shellfish and Crustacean Diseases	<a href="http://www.vri.gr/">http://www.vri.gr/</a>
2.70	Praxis Fish Feeds	Industry	10. Company	private	Piraeas	Greece		<a href="https://www.praxisaquaculture.gr/praxisfishfeeds">https://www.praxisaquaculture.gr/praxisfishfeeds</a>

**Mapping - Topic 2**

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation?	Location Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Sources Website
2.1	Alma Mater Studiorum – University of Bologna	Academia	1. University	public	Bologna	Italy		<a href="http://www.cirsa.unibo.it">http://www.cirsa.unibo.it</a>
2.2	AREA Science Park	Academia	11. Science & Technology Park			Italy		<a href="http://www.areasciencepark.it">http://www.areasciencepark.it</a>
2.3	Aster innovazione attiva	Civil Society	20. Other	other		Italy		<a href="https://www.aster.it">https://www.aster.it</a>
2.4	Ca' Foscari University of Venice	Academia	1. University	public		Italy		<a href="https://www.unive.it/pag/16129">https://www.unive.it/pag/16129</a>
2.5	Central European Initiative	Academia	1. University	public		Italy		<a href="https://www.cei.int">https://www.cei.int</a>
2.6	Cestha - Experimental Centre for Habitat Conservation	Academia	1. University	public		Italy		<a href="http://www.cestha.it">http://www.cestha.it</a>
2.7	Coispa Research & Technology	Academia	2. Research Organisation	public		Italy		<a href="https://www.coispa.it">https://www.coispa.it</a>
2.8	Confindustria Veneto SIAV S.p.A., Knowledge and Innovation Unit	Academia	20. Other			Italy		<a href="http://www.siav.net">http://www.siav.net</a>
2.9	Cooperative Research Institute	Academia	2. Research Organisation	public		Italy		<a href="http://www.icrmare.it">http://www.icrmare.it</a>
2.10	Iuav University of Venice	Academia	1. University	public		Italy		<a href="http://www.iuav.it">http://www.iuav.it</a>
2.11	IZSve - Istituto Zooprofilattico Sperimentale delle Venezie	Academia	2. Research Organisation	public		Italy		<a href="https://www.izsvenezie.it/istituto/">https://www.izsvenezie.it/istituto/</a>
2.12	Maritime Technology cluster of Friuli Venezia Giulia (Mare TC FVG)	Academia	4. Cluster	public		Italy		<a href="https://www.marefvg.it">https://www.marefvg.it</a>
2.13	Mediterranean Agronomic Institute of Bari	Academia	2. Research Organisation	public	Bari	Italy		<a href="https://www.iamb.it">https://www.iamb.it</a>
2.14	National Institute of Oceanography and Experimental Geophysics - OGS	Academia	2. Research Organisation	public		Italy		<a href="https://www.inogs.it">https://www.inogs.it</a>
2.15	National Interuniversity Consortium for Marine Sciences - CoNISMa	Academia	2. Research Organisation	public		Italy		<a href="http://www.conisma.it">http://www.conisma.it</a>
2.16	Italian National Institute for Environmental Protection and Research	Academia	2. Research Organisation	public		Italy		<a href="http://eurogoos.eu/member/ispra-institute-for-environmental-protection-and-research-ispra/">http://eurogoos.eu/member/ispra-institute-for-environmental-protection-and-research-ispra/</a>
2.17	National Research Council of Italy	Academia	3. Public Authority	public		Italy		<a href="https://www.cnr.it">https://www.cnr.it</a>

**Mapping - Topic 2**

2.18	National Research Council of Italy – Department Of Chemical Science And Material Technology	Academia	2. Research Organisation	public		Italy		<a href="https://www.cnr.it/en/thematic-areas/chemistry-materials">https://www.cnr.it/en/thematic-areas/chemistry-materials</a>
2.19	National Research Council – Institute of Marine Sciences (Cnr-Ismar)	Academia	2. Research Organisation	public		Italy		<a href="http://www.ricercamarina.cnr.it/en/ismar.php">http://www.ricercamarina.cnr.it/en/ismar.php</a>
2.20	National Research Council Institute of Biological Resources and Marine Biotechnologies	Academia	2. Research Organisation	public		Italy		<a href="https://ariel.adrioninterreg.eu/">https://ariel.adrioninterreg.eu/</a>
2.21	Polytechnic University of Bari, Department of Electrical and Information Engineering	Academia	1. University	public	Bari	Italy		<a href="https://www.poliba.it">https://www.poliba.it</a>
2.22	Secondary High School 'Remo Brindisi' - Pole of Sea Crafts	Academia	14. Other	public		Italy		<a href="http://www.istitutoremobrindisi.it">http://www.istitutoremobrindisi.it</a>
2.23	t2i - Technology Transfer and Innovation	Civil Society	20. Other	other		Italy		<a href="http://www.t2i.it">http://www.t2i.it</a>
2.24	University of Bari	Academia	1. University/ Polytechnic	public	Bari	Italy		<a href="http://www.uniba.it">http://www.uniba.it</a>
2.25	University of Bologna	Academia	1. University/ Polytechnic	public	Bologna	Italy		<a href="http://www.unibo.it">http://www.unibo.it</a>
2.26	University of Camerino	Academia	1. University/ Polytechnic	public	Camerino	Italy		<a href="http://www.unicam.it">http://www.unicam.it</a>
2.27	University of Ferrara	Academia	1. University/ Polytechnic	public	Ferrara	Italy		<a href="http://www.unife.it">http://www.unife.it</a>
2.28	University of Siena	Academia	1. University/ Polytechnic	public	Siena	Italy		<a href="https://en.unisi.it">https://en.unisi.it</a>
2.29	University of Trieste	Academia	1. University/ Polytechnic	public	Trieste	Italy		<a href="http://www.units.it">http://www.units.it</a>
2.30	University of Udine	Academia	1. University/ Polytechnic	public	Udine	Italy		<a href="https://www.uniud.it">https://www.uniud.it</a>
2.31	Marche Region Fisheries, Commerce and Consumers' Protection	Government	17. Regional Authority	public		Italy		
2.32	Marche Region - Fisheries Economy Department	Government	17. Regional Authority	public		Italy		<a href="http://www.regione.marche.it/Regione-Utile/Agricoltura-Sviluppo-Rurale-e-Pesca/Pesca">http://www.regione.marche.it/Regione-Utile/Agricoltura-Sviluppo-Rurale-e-Pesca/Pesca</a>
2.33	Sicily Region - Mediterranean Fisheries Department - Sicilian Region Dipartimento della Pesca Mediterranea	Government	17. Regional Authority	public		Italy		



**Mapping - Topic 2**

2.34	Italian National Institute for Environmental Protection and Research Marine Monitoring and Assessment Unit	Academia	2. Research Organisation	public	Rome	Italy	
2.35	Gruppo di Azione Locale Venezia Orientale	Government	7. Community-led local development (CLLD) organisation	public		Italy	<a href="https://www.vegal.net/">https://www.vegal.net/</a>
2.36	ASSAM - AGENCY FOR AGROFOOD SECTOR SERVICES OF MARCHE	Civil Society	20. Other			Italy	<a href="http://www.assam.marche.it/">http://www.assam.marche.it/</a>
2.37	ADVISORY COUNCIL FOR THE MEDITERRANEAN	Civil Society	20. Other	other		Italy	<a href="http://www.med-ac.eu">www.med-ac.eu</a>
2.38	Fishfarm Caldoli Ltd	Industry	10. Company	private		Italy	
2.39	Friultrota Di Pighin Ltd	Industry	10. Company	private		Italy	<a href="https://www.friultrota.com/en">https://www.friultrota.com/en</a>
2.40	VENETO REGION - AGRICULTURE, HUNTING AND FISHERY DIRECTION	Government	17. Regional Authority	public		Italy	<a href="http://www.regione.veneto.it">www.regione.veneto.it</a>
2.41	Società della Salute di Pisa	Government	17. Regional Authority	public		Italy	<a href="http://www.sds.zonapisana.it/">http://www.sds.zonapisana.it/</a>
2.42	Confcommercio La Spezia	Civil Society	9. Association or Federation			Italy	<a href="http://www.confcommerciolaspezia.it/">http://www.confcommerciolaspezia.it/</a>
2.43	Radio Monte Serra s.r.l. - radio Toscana	Industry	10. Company	private		Italy	<a href="https://www.radiotoscana.it/">https://www.radiotoscana.it/</a>
2.44	Regione Autonoma della Sardegna	Government	17. Regional Authority	public		Italy	<a href="https://www.regione.sardegna.it/">https://www.regione.sardegna.it/</a>
2.45	Cooperativa Sociale Cellarius	Civil Society	9. Association or Federation			Italy	<a href="https://www.confcooperative.cagliari.it/cellarius-societa-cooperativa-sociale/">https://www.confcooperative.cagliari.it/cellarius-societa-cooperativa-sociale/</a>
2.46	Sviluppo Marche Srl	Industry	10. Company	private		Italy	<a href="https://www.svim.eu/">https://www.svim.eu/</a>
2.47	Regional Agrofood District	Government	15. SME promotion agency	public		Italy	<a href="http://www.darepuglia.it">http://www.darepuglia.it</a>
2.48	PUNTO CONFINDUSTRIA Srl.	Industry	10. Company	private		Italy	<a href="https://www.puntoconfindustria.it/">https://www.puntoconfindustria.it/</a>
2.49	Organisation Producers of Bivalve Mollusc of the Veneto Sea (Adriatic Sea)	Civil Society	8. Producer Organisation			Italy	<a href="https://www.italy-croatia.eu/web/prizefish">https://www.italy-croatia.eu/web/prizefish</a>
2.50	Emilia Romagna Region - General Directorate for Agriculture Hunting and Fishing, Service for Wildlife and Fishing Activities	Government	17. Regional Authority	public		Italy	<a href="https://www.regione.emilia-romagna.it/">https://www.regione.emilia-romagna.it/</a>
2.51	Municipality of Ravenna	Government	18. Municipality	public	Ravenna	Italy	<a href="http://www.comune.ra.it">http://www.comune.ra.it</a>
2.52	ARPAE - Regional Agency for Prevention, Environment and Energy in Emilia Romagna	Government	17. Regional Authority	public		Italy	<a href="https://www.arpae.it/dettaglio_generale.asp?id=2711">https://www.arpae.it/dettaglio_generale.asp?id=2711</a>

**Mapping - Topic 2**

2.53	Regional Agency for Environmental Prevention and Protection of the Puglia Region Public Body	Government	17. Regional Authority	public		Italy		<a href="http://www.arpa.puglia.it/web/guest/arpa_home">http://www.arpa.puglia.it/web/guest/arpa_home</a>
2.54	Fisheries Local Action Group Costa dei Trabocchi	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="https://www.flagcostadeitrabocchi.it/">https://www.flagcostadeitrabocchi.it/</a>
2.55	Aries – Società Consortile a Responsabilità Limitata	Industry	10. Company	private		Italy		<a href="http://aries.ts.camcom.it/it/aries/chi-siamo.htm">http://aries.ts.camcom.it/it/aries/chi-siamo.htm</a>
2.56	Gruppo di azione locale del Carso – Lokalna akcijska skupina Kras	Industry	10. Company	private		Italy		<a href="http://www.galcarso.eu/it/">http://www.galcarso.eu/it/</a>
2.57	Municipality of Trabia	Government	18. Municipality	public	Trabia	Italy		<a href="http://villaceciliatrabia.com/luogoestoria.htm">http://villaceciliatrabia.com/luogoestoria.htm</a>
2.58	Promimpresa srl	Industry	10. Company	private		Italy		<a href="https://www.promimpresa.it/">https://www.promimpresa.it/</a>
2.59	International Promotion Sicily-World - PRISM	Civil Society	20. Other			Italy		<a href="https://www.associazioneprism.eu/">https://www.associazioneprism.eu/</a>
2.60	Haliéus	Civil Society	6. NGO	other		Italy		<a href="https://www.halieus.it/en/home_en/">https://www.halieus.it/en/home_en/</a>
2.61	Management Consortium of Torre Guaceto	Government	12. Protected Areas Management Body	public		Italy		<a href="https://www.rac-spa.org/node/890">https://www.rac-spa.org/node/890</a>
2.62	Management Consortium Marine Protected Area Porto Cesareo	Government	12. Protected Areas Management Body	public		Italy		<a href="http://adriplan.eu/index.php/consortium/115-consortium/partners/observers/281-marine-protected-area-porto-cesareo">http://adriplan.eu/index.php/consortium/115-consortium/partners/observers/281-marine-protected-area-porto-cesareo</a>
2.63	Euro-Mediterranean Centre on Climate Change Foundation	Civil Society	6. NGO	other		Italy		<a href="http://cmcc.it">cmcc.it</a>
2.64	The Italian Federation of Parks and Nature Reserves	Government	12. Protected Areas Management Body	public		Italy		<a href="http://www.parks.it/federparchi/Eindex.php">http://www.parks.it/federparchi/Eindex.php</a>
2.65	Lloyd's Register EMEA (classification society)	Civil Society	20. Other			Italy		<a href="https://www.lr.org/en/">https://www.lr.org/en/</a>
2.66	Friuli Venezia Giulia FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.gacfvjg.it">www.gacfvjg.it</a>
2.67	Venetian - VeGAL FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.68	Chioggia and the Po Delta FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.gacchioggiadeltadelpo.com/news/">http://www.gacchioggiadeltadelpo.com/news/</a>

**Mapping - Topic 2**

2.69	Emilia-Romagna Coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.70	North Marche FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.gacmarchenord.eu">www.gacmarchenord.eu</a>
2.71	South Marche FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.72	Central Marche FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="https://www.flagmarchecentro.eu/amministrazione-trasparente/">https://www.flagmarchecentro.eu/amministrazione-trasparente/</a>
2.73	Pescara Coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.flagcostadipescara.it/bandi-e-avvisi/">http://www.flagcostadipescara.it/bandi-e-avvisi/</a>
2.74	Blue Coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://flag-costablu.it">http://flag-costablu.it</a>
2.75	Molise Coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.76	Coast to Coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.77	Pearl of the Tyrrhenian Sea FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.flagperti.it">http://www.flagperti.it</a>
2.78	The marine villages of Ionian Sea FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.79	Trapanese FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.flagtrapanese.it">http://www.flagtrapanese.it</a>
2.80	Due mari FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.gacdeiduemari.it/it/bandi/">http://www.gacdeiduemari.it/it/bandi/</a>

**Mapping - Topic 2**

2.81	Castellamare and Carini gulfs FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.82	Sicily Islands FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.83	Sun and Blue FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.gacsoleazzurro.it">http://www.gacsoleazzurro.it</a>
2.84	Etnea Coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		
2.85	Ionian 2 FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.flagionio2.it/bandi-e-avvisi-flag/">http://www.flagionio2.it/bandi-e-avvisi-flag/</a>
2.86	Trabocchi coast FLAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="https://www.flagcostadeitrabocchi.it/bandi-contratti-lavori-forniture-servizi/">https://www.flagcostadeitrabocchi.it/bandi-contratti-lavori-forniture-servizi/</a>
2.87	Gargano multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galgargano.com/category/bandi-e-avvisi/bandi-di-gara/">http://www.galgargano.com/category/bandi-e-avvisi/bandi-di-gara/</a>
2.88	Daunofantino multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galdaunofantino.com/category/bandi-e-avvisi/">http://www.galdaunofantino.com/category/bandi-e-avvisi/</a>
2.89	Ponte Lama multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galpontelama.it/#bandi">http://www.galpontelama.it/#bandi</a>
2.90	South East Bari multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galseb.it/bandi/41-bandi.html?layout=blog">http://www.galseb.it/bandi/41-bandi.html?layout=blog</a>
2.91	Trulli and Barsento multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galtrulli-barsento.it">http://www.galtrulli-barsento.it</a>
2.92	Itria Valley multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galvalleditria.it/bandi.aspx">http://www.galvalleditria.it/bandi.aspx</a>

**Mapping - Topic 2**

2.93	Alto Salento 2020 multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galaltosalento2020.it">http://www.galaltosalento2020.it</a>
2.94	Porta a Levante multifund LAG	Government	7. Community-led local development (CLLD) organisation	public		Italy		<a href="http://www.galportaalevante.it">http://www.galportaalevante.it</a>
2.95	Terra d'Arneo multifund LAG	Government	7. CLLD organisation	public		Italy		<a href="http://www.terradarneo.it">http://www.terradarneo.it</a>
2.96	Federcoopescas	Civil Society	9. Association or Federation		Roma	Italy		
2.97	Federpesca	Civil Society	9. Association or Federation		Roma	Italy		
2.98	AGCI Agrital	Civil Society	9. Association or Federation		Roma	Italy		
2.99	Coldiretti- Impresa Pesca	Civil Society	9. Association or Federation		Roma	Italy		
2.100	FAI-CISL	Civil Society	9. Association or Federation		Roma	Italy		
2.101	FIPIA -Federazione Italiana Pesca In Apnea	Civil Society	9. Association or Federation		Terni	Italy		
2.102	FIPSAS - Federazione Italiana Pesca Sportiva e Attività Su bacquee	Civil Society	9. Association or Federation		Roma	Italy		
2.103	Legacoop	Civil Society	9. Association or Federation		Roma	Italy		
2.104	Legambiente	Civil Society	9. Association or Federation		Roma	Italy		
2.105	MEDREACT	Civil Society	6. NGO		Roma	Italy		
2.106	UILAPESCA	Civil Society	9. Association or Federation		Roma	Italy		
2.107	UNCI AGROALIMENTARE - Dipartimento Pesca	Civil Society	9. Association or Federation		Roma	Italy		

**Mapping - Topic 2**

Nr			General Information	Location				Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority 4. Cluster etc (drop down menu)	Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Website
2.1	University of Montenegro	Academia	1. University/ Polytechnic	Public	Podgorica	Montenegro		<a href="https://www.ucg.ac.me/predmet/7/3/1/2017/4/296-hidrobiology">https://www.ucg.ac.me/predmet/7/3/1/2017/4/296-hidrobiology</a>
2.2	National Institute of Biology	Academia	1. University/ Polytechnic	Public		Montenegro		<a href="https://www.bodc.ac.uk/resources/inventories/edmed/org/2432/">https://www.bodc.ac.uk/resources/inventories/edmed/org/2432/</a>
2.3	MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT Directorate for agriculture and fisheries - Department for fisheries	Government	3. Public Authority	Public	Podgorica	Montenegro		<a href="https://ariel.adrioninterreg.eu/">https://ariel.adrioninterreg.eu/</a>
2.4	University of Montenegro – Institute for marine biology	Academia	1. University/ Polytechnic	Public	Podgorica	Montenegro		<a href="https://www.ucg.ac.me/fakultet/35">https://www.ucg.ac.me/fakultet/35</a>
2.5	The Chamber of Economy of Montenegro Project Department	Government	16. Chamber	Public	Podgorica	Montenegro		
2.6	Opština Herceg Novi	Government	20. Other	Municipality, Public		Montenegro		
2.7	Public enterprise for coastal zone management of Montenegro	Government	10. Company	Public	Budva	Montenegro		<a href="http://www.morskodobro.com/">http://www.morskodobro.com/</a>
2.8	Ministry of Economy of Montenegro	Government	3. Public Authority	Public	Podgorica	Montenegro		<a href="http://www.mek.gov.me/ministarstvo">http://www.mek.gov.me/ministarstvo</a>
2.9	Government of Montenegro. Prime Minister's Office. European Integration Office	Government	3. Public Authority	Public	Podgorica	Montenegro		<a href="http://www.kei.gov.me/">http://www.kei.gov.me/</a>
2.10	University of Montenegro – Institute for marine biology	Academia	1. University/ Polytechnic	Public	Kotor	Montenegro		<a href="https://www.ucg.ac.me/fakultet/35">https://www.ucg.ac.me/fakultet/35</a>
2.11	Agency for Nature and Environment Protection	Government	Public Authority	Public	Podgorica	Montenegro		<a href="http://www.epa.org.me">www.epa.org.me</a>

**Mapping - Topic 2**

Nr			General Information	Location				Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority 4. Cluster etc (drop down menu)	Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Website
2.1	University of Belgrade	Academia	University	public	Belgrade	Serbia	Faculty of Agriculture	<a href="https://www.bg.ac.rs/">https://www.bg.ac.rs/</a>
2.2	Institute for Biological Research	Academia	Research Institute	public	Belgrade	Serbia		<a href="http://www.bg.ac.rs/en/members/institutes/Sinisa-Stankovic.php">http://www.bg.ac.rs/en/members/institutes/Sinisa-Stankovic.php</a>
2.3	Institute for Multidisciplinary Research	Academia	Research Institute	public	Belgrade	Serbia		<a href="http://www.imsi.bg.ac.rs/">http://www.imsi.bg.ac.rs/</a>
2.4	University of Kragujevac	Academia	University	public	Čačak	Serbia	Faculty of Agronomy	<a href="https://en.kg.ac.rs/">https://en.kg.ac.rs/</a>
2.5	University of Novi Sad	Academia	University	public	Novi Sad	Serbia	Faculty of Agriculture	<a href="https://www.uns.ac.rs/">https://www.uns.ac.rs/</a>

**Mapping - Topic 2**

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority 4. Cluster etc (drop down menu)	Location Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Sources Website
2.1	Jozef Stefan Institute	Academia	2. Research Organisation	public	Ljubljana	Slovenia		<a href="https://www.ijs.si/ijsw/JSI">https://www.ijs.si/ijsw/JSI</a>
2.2	National Institute of Biology	Academia	2. Research Organisation	public	Ljubljana	Slovenia		<a href="https://www.nib.si">https://www.nib.si</a>
2.3	National Institute of Biology Marine Biology Station Piran	Academia	2. Research Organisation	public	Piran	Slovenia		<a href="http://www.assembleplus.eu/access/access-providers/NIB">http://www.assembleplus.eu/access/access-providers/NIB</a>
2.4	TechnoCenter at University of Maribor	Academia	1. University/ Polytechnic	public	Maribor	Slovenia		<a href="http://www.tehnocenter.si/en">http://www.tehnocenter.si/en</a>
2.5	Technology Park Ljubljana	Academia	11. Science & Technology Park	public	Ljubljana	Slovenia		<a href="https://www.tp-lj.si">https://www.tp-lj.si</a>
2.6	University of Primorska - Faculty of Management	Academia	1. University	public	Primorska	Slovenia		<a href="http://www.fm-kp.si">http://www.fm-kp.si</a>
2.7	Istria FLAG	Government	7. Community-led local development (CLLD) organisation	public		Slovenia		<a href="http://www.las-istre.si">http://www.las-istre.si</a>
2.8	Soča Valley FLAG	Government	7. Community-led local development (CLLD) organisation	public		Slovenia		<a href="https://www.soca-valley.com/en/?gclid=Cj0KCQjwZ7H7BRDzARIsAGjbK2ZIn78kGI9dtwZdts7OFFLV8oHfE2s_CFNl9i2J2VbSefzHTagIjUaAmy6EALw_wcB">https://www.soca-valley.com/en/?gclid=Cj0KCQjwZ7H7BRDzARIsAGjbK2ZIn78kGI9dtwZdts7OFFLV8oHfE2s_CFNl9i2J2VbSefzHTagIjUaAmy6EALw_wcB</a>
2.9	Gorenjska košarica FLAG	Government	7. Community-led local development (CLLD) organisation	public		Slovenia		<a href="http://www.las-gorenjskakosarica.si/javni-pozivi/">http://www.las-gorenjskakosarica.si/javni-pozivi/</a>
2.10	Posavje FLAG	Government	7. Community-led local development (CLLD) organisation	public		Slovenia		<a href="http://www.las-posavje.si/aktualni.html">http://www.las-posavje.si/aktualni.html</a>
2.11	Primorska Gospodarska Zbornica	Government	16. Chamber	public		Slovenia		<a href="https://www.pgz-slo.si/">https://www.pgz-slo.si/</a>
2.12	Slovenian Environment Agency, State of the Environment Office	Government	3. Public Authority	Public	Ljubljana	Slovenia		<a href="https://www.arso.gov.si/en/environmental%20protection/">https://www.arso.gov.si/en/environmental%20protection/</a>



**Mapping - Topic 2**

Nr			General Information	Location				Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority, Cluster, RTD Platform. NGO.	Legal status: public; private; other	City	Country	Faculty/department, institute responsible	Website
2.1	PSI Hydrobiological Institute - Ohrid	Academia	Research Institute	public	Ohrid	North Macedonia	Department for fishery and aquaculture	<a href="mailto:zoranspi@hio.edu.mk">zoranspi@hio.edu.mk</a>
2.2	PSI Hydrobiological Institute - Ohrid	Academia	Research Institute	public	Ohrid	North Macedonia	Department for fishery and aquaculture	<a href="mailto:dusicaib@hio.edu.mk">dusicaib@hio.edu.mk</a>

Mapping - Topic 3

Nr	Name of institution	Quadruple helix	General Information	Location	City	Country	Specific characteristics	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources
			Type of organisation: 1. University, 2. Research Organisation 3. Public Authority	Legal status: public; private; other			RTD activities			Website
3.1	Environmental Center for Administration and Technology ECAT-Tirana	Academia	2. Research Organisation		Tirana	Albania	Environmental policies (Participation in SHAPE)		Maritime Spatial Planning	
3.2 Modernizing and harmonizing maritime education in Montenegro and Albania MAR-ED	University "Ismael Qemali"	Academia	1. University/ Polytechnic	Public	Vlora	Albania		Faculty of Technical Science	Maritime Skills	<a href="https://univlora.edu.al/en/fakulteti-i-shkencave-teknike/">https://univlora.edu.al/en/fakulteti-i-shkencave-teknike/</a>
	Shkodra University "Luigj Gurakuqi"	Academia	1. University/ Polytechnic	Public	Shkodra	Albania		Faculty of Economics	Maritime Skills	<a href="https://unishk.edu.al/en/">https://unishk.edu.al/en/</a>
	Seaport of Vlora S.A.	Industry	20. Other (Port)	Private	Vlora	Albania			Maritime Skills	

Mapping - Topic 3

Nr			General Information type of organisation:	Location			Specific characteristics			Sources
	Name of institution	Quadruple helix	1. University, 2. Research Organisation 3. Public Authority	Legal status: public; private; other	City	Country	RTD activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Website
3.1	Centre for economic, technological and environmental development Sarajevo	Industry	10. Company		Sarajevo	Bosnia and Herzegovina	<ul style="list-style-type: none"> <li>• <input type="checkbox"/> Evaluation of the effect on the environment by the energy and technological plants, as well as traffic;</li> <li>• <input type="checkbox"/> Introducing the System of environmental management to the organizations;</li> <li>• <input type="checkbox"/> Audits of System of environmental management and health and safety at work;</li> <li>• <input type="checkbox"/> Air quality management;</li> <li>• <input type="checkbox"/> Chemical safety and</li> <li>• <input type="checkbox"/> Risk management (Participation in PORTODIMARE)</li> </ul>		Maritime Spatial Planning, Integrated Coastal Management	<a href="http://www.ceteor.ba/en">http://www.ceteor.ba/en</a>
3.2	Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina	Government	3. Public Authority	public		Bosnia and Herzegovina		Coordinator EUSAIR Pillar III	MSP	

Mapping - Topic 3

Nr	Name of institution	Quadruple helix	General Information type of organisation: 1. University, 2. Research Organisation 3. Public Authority	Location Legal status: public; private; other	City	Country	Specific characteristics RTD activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
3.1	University of Thessaly	Academia	1. University/ Polytechnic	Public	Volos	Greece	Maritime and Marine Governance	Department of Planning and Regional Development	Maritime Spatial Planning	<a href="http://www.prd.uth.gr/">http://www.prd.uth.gr/</a>
3.2	National Technical University of Athens (NTUA)	Academia	1. University/ Polytechnic	Public	Athens	Greece	architectural design and spatial planning, history and theory of architecture	Department of Architecture	Maritime Spatial Planning, Integrated coastal management	<a href="http://www.arch.ntua.gr/en">http://www.arch.ntua.gr/en</a>
3.3	National Technical University of Athens	Academia	1. University/ Polytechnic	Public	Athens	Greece		School of Naval Architecture and Marine Engineering		<a href="http://www.naval.ntua.gr/introduction">http://www.naval.ntua.gr/introduction</a>
3.4	Aristotle University of Thessaloniki	Academia	1. University/ Polytechnic	Public	Thessaloniki	Greece	sciences of Rural and Surveying Engineering	Faculty of Engineering, School of Rural and Surveying Engineering	Maritime Spatial Planning, Integrated coastal management	<a href="https://www.topo.auth.gr/en">https://www.topo.auth.gr/en</a>
3.5	National and Kapodistrian University of Athens	Academia	1. University/ Polytechnic	Public	Athens	Greece	a) EU Governance and b) European Politics of Greece. In this context, the Centre's activities include studying, educating, informing and producing policy proposals on the current developments in the field of European governance (including European agricultural, maritime and tourism governance), the position of Greece in the ever-changing European environment and, more generally, the Greek European and foreign policy.	Jean Monnet European Centre of Excellence	Maritime Spatial Planning, Governance of Maritime Space, Integrated Coastal Management	<a href="https://jmce.gr/portal/en/">https://jmce.gr/portal/en/</a>
3.6	University of Piraeus	Academia	1. University/ Polytechnic	Public	Piraeus	Greece	maritime, transport and logistics.	Department of Maritime Studies	Maritime Spatial Planning, Governance of Maritime Space, Integrated Coastal Management, Maritime Skills	<a href="https://www.unipi.gr/unipi/el/naf-home.html">https://www.unipi.gr/unipi/el/naf-home.html</a>
3.7	University of Piraeus	Academia	1. University/ Polytechnic	Public	Piraeus	Greece	<ul style="list-style-type: none"> <li>• <input type="checkbox"/> Oceanographic studies.</li> <li>• <input type="checkbox"/> Geochemical studies.</li> <li>• <input type="checkbox"/> Environmental studies.</li> <li>• <input type="checkbox"/> Integrated Coastal Zone Management.</li> <li>• <input type="checkbox"/> Blue Growth.</li> </ul>	Department of Maritime Studies - Laboratory of Oceanography and Marine Geochemistry	Integrated coastal management	<a href="https://maritime-unipi.gr/erevna/erevnikita-ergastiria/ergastirio-oceanografias-ke-thalassias-geochimias/">https://maritime-unipi.gr/erevna/erevnikita-ergastiria/ergastirio-oceanografias-ke-thalassias-geochimias/</a>
3.8	Panteion University	Academia	1. University/ Polytechnic	Public	Athens	Greece	Economics; and Regional Science	Department of Economic and Regional Development	Maritime Spatial Planning, Integrated Coastal Management	<a href="https://topa.panteion.gr/">https://topa.panteion.gr/</a>
3.9	University of the Aegean	Academia	1. University/ Polytechnic	Public	Mytilene	Greece		SCHOOL OF THE ENVIRONMENT - Department of Marine Sciences	Integrated coastal management	<a href="https://www.aegean.gr/departments/%CF%84%CE%B C%CE%AE%CE%BC%CE%B1-%CF%89%CE%BA%CE%B5%CE%B1%CE%BD%CE%BF%CE%B3%CF%81%CE%B1%CF%86%CE%AF%CE%B1%CF%82-%CE%BA%CE%B1%CE%B9-%CE%B8%CE%B1%CE%BB%CE%B1%CF%83%CF%83%CE%AF%CF%89%CE%BD-%CE%B2%CE%B9%CE%BF%CE%B5%CF%80%CE">https://www.aegean.gr/departments/%CF%84%CE%B C%CE%AE%CE%BC%CE%B1-%CF%89%CE%BA%CE%B5%CE%B1%CE%BD%CE%BF%CE%B3%CF%81%CE%B1%CF%86%CE%AF%CE%B1%CF%82-%CE%BA%CE%B1%CE%B9-%CE%B8%CE%B1%CE%BB%CE%B1%CF%83%CF%83%CE%AF%CF%89%CE%BD-%CE%B2%CE%B9%CE%BF%CE%B5%CF%80%CE</a>
3.10	University of the Aegean	Academia	1. University/ Polytechnic	Public	Chios	Greece	Shipping, Transportation, International Trade, and Entrepreneurship	Department of Shipping, Trade and Transport	bio-security, blue bio-technologies <ul style="list-style-type: none"> <li>• <input type="checkbox"/> Cluster development</li> <li>• <input type="checkbox"/> Scientific research - Researchers mobility – spin-offs</li> <li>• <input type="checkbox"/> Governance of maritime space</li> <li>• <input type="checkbox"/> Maritime Spatial Planning</li> <li>• <input type="checkbox"/> Integrated coastal management</li> </ul> Maritime Skills	<a href="https://www.stt.aegean.gr/en/">https://www.stt.aegean.gr/en/</a>
3.11	Foundation for Research and Technology	Academia	2. Research Organisation		Heraklion	Greece	Lasers and Photonics, Microelectronics, Advanced Materials/Nanotechnology, Molecular Biology and Genetics, Biotechnology, Computer Science, Bioinformatics, Precision Medicine, Systems Biology, Robotics, Telecommunications, Applied and Computational Mathematics, Chemical		Maritime Spatial Planning, Governance of Maritime Space	<a href="https://www.forth.gr/index.php?l=e">https://www.forth.gr/index.php?l=e</a>

Mapping - Topic 3

3.12	Olokliromena Pliroforiaka Sistimata	Industry	10. Company	Private	Athens	Greece	Development of software products and provision of integration services <ul style="list-style-type: none"> <li>• <input type="checkbox"/> Aquaculture management</li> <li>• <input type="checkbox"/> Maintenance management</li> <li>• <input type="checkbox"/> Service management</li> <li>• <input type="checkbox"/> Quality management &amp; quality improvement (Participation in BLUEBRIDGE)</li> </ul>		Maritime Spatial Planning	<a href="https://www.i2s.gr/en/">https://www.i2s.gr/en/</a>
3.13	Communication & Information Technologies Experts Anonymos Etaireia Symvouleftikon Kai Anaptyxiakon Ypiresion	Industry	10. Company	Private	Athens	Greece	CIT services and solutions (Participation in BLUEBRIDGE)		Maritime Spatial Planning	<a href="https://www.cite.gr/">https://www.cite.gr/</a>
3.14	National Marine Park of Zakynthos (N.M.P.Z.)	Civil Society	20. Other		Zakynthos	Greece	tourism and agriculture (participation in MSP Med - Paving the Road to MSP in the Mediterranean)		Maritime Spatial Planning	<a href="http://www.nmp-zak.org/en">http://www.nmp-zak.org/en</a>
3.15	Fisheries Research Institute	Academia	2. Research Organisation	Public	Kavala	Greece	fisheries, the aquatic environment (coastal, transitional and inland waters), fishery exploitation and aquaculture (Participation in PERICLES)		Maritime Spatial Planning	<a href="https://inale.gr/en/home_inale_en/">https://inale.gr/en/home_inale_en/</a>
3.16	SYNERGASIA Ltd	Industry	10. Company	Private	Heraklion	Greece	Participation in PERSEUS		Maritime Spatial Planning	<a href="http://synergasia.com.gr/index.php">http://synergasia.com.gr/index.php</a>
3.17	Planet Blue Dive Center	Industry	10. Company	Private	Athens	Greece	Participation in UNITED		Maritime Spatial Planning	<a href="https://www.planetblue.gr/">https://www.planetblue.gr/</a>
3.18	Wings-ICT-Solutions	Industry	10. Company	Private	Athens	Greece	advanced wireless networking, cloud/IoT, big data, artificial intelligence and security technologies (Participation in UNITED)		Maritime Spatial Planning	<a href="https://www.wings-ict-solutions.eu/">https://www.wings-ict-solutions.eu/</a>
3.19	Hellenic Centre for Marine Research	Academia	2. Research Organisation	Public	Athens	Greece	<ul style="list-style-type: none"> <li>• Structure and functioning of inland, coastal and marine ecosystems, including ecosystem modeling</li> <li>• Aquatic biodiversity (at all levels)</li> <li>• Integrated Marine Observing and Forecasting Systems in the Greek seas</li> <li>• The role of climatic change in the evolution of aquatic ecosystems (marine and terrestrial)</li> <li>• Effects of natural and human-induced pressures and hazards on the marine environment (e.g. oil spills, pollution, tsunamis, floods, aquatic invasions, HABs, slumps)</li> <li>• Life history of fish, fisheries dynamics, fisheries ecology, modelling, and management</li> <li>• Aquaculture</li> <li>• Population genetics and genomics of marine organisms</li> <li>• Biotechnological applications</li> <li>• Integrated river basin and coastal zone management</li> </ul>		Maritime Spatial Planning, Integrated coastal management	<a href="https://www.hcmr.gr/en/">https://www.hcmr.gr/en/</a>
3.20	University of West Attica	Academia	1. University/ Polytechnic	Public	Athens	Greece	Shipbuilding science and technology	Naval Architecture Department	Maritime Spatial Planning, Integrated coastal management, Maritime Skills	<a href="http://www.na.uniwa.gr/en/home/">http://www.na.uniwa.gr/en/home/</a>
3.21	Blue Lab Piraeus	Civil Society	14. Blue Career and skills Centre	Private	Piraeus	Greece	Entrepreneurial Innovation Center		Maritime Skills	<a href="https://www.bluelab.gr/">https://www.bluelab.gr/</a>
3.22	Hellenic Shortsea Shipowners Association	Industry	9. Association or Federation	Non-profit	Piraeus	Greece			Maritime Skills	<a href="http://www.shortsea.gr">www.shortsea.gr</a>

Mapping - Topic 3

3.23	Union of Greek Shipowners	Industry	9. Association or Federation	Non-profit	Piraeus	Greece			Maritime Skills	<a href="http://www.ugs.gr">www.ugs.gr</a>
3.24	Maritime Hellas	Industry	4. Cluster	Non-profit	Piraeus	Greece			Maritime Skills	<a href="http://www.maritimehellas.org">www.maritimehellas.org</a>
3.25	Evgenides Foundation	Civil Society	20. Other (Foundation)	Non-profit	Athens	Greece			Maritime Skills	<a href="https://www.eef.edu.gr/">https://www.eef.edu.gr/</a>
3.26	Ministry of Rural Development and Food (DG Fisheries)	Government	3. Public authority		Athens	Greece				
3.27	Ministry of Environment and Energy	Government	3. Public authority	public		Greece		MSP national authority	MSP	

## Mapping - Topic 3

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public	Location Legal status: public; private; other	City	Country	Specific characteristics RTD activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
3.1	Hydrographic Institute of the Republic of Croatia	Academia	2. Research Organisation		Split	Croatia			Governance of maritime space	<a href="http://www.hhi.hr/en">http://www.hhi.hr/en</a>
3.2	Blue World Institute of Marine Research and Conservation (BWI)	Civil Society	6. NGO		Rijeka	Croatia	common bottlenose dolphins, Marine Protected Areas and Marine Spatial Planning (participation in Adriatic plus)		Integrated Coastal Management, Maritime Spatial Planning	<a href="https://www.blue-world.org/">https://www.blue-world.org/</a>
3.3	University of Split	Academia	1. University/ Polytechnic	Public	Split	Croatia		Faculty of Maritime Studies	Maritime skills	<a href="https://www.pfst.unist.hr/en/">https://www.pfst.unist.hr/en/</a>
3.4	University of Split	Academia	1. University/ Polytechnic	Public	Split	Croatia		Faculty of Maritime Studies	Maritime skills	<a href="https://www.pfst.unist.hr/en/">https://www.pfst.unist.hr/en/</a>
3.5	University of Rijeka	Academia	1. University/ Polytechnic	Public	Rijeka	Croatia	Maritime training and life-long learning	MARITIME TRAINING CENTRE AND LIFE-LONG LEARNING	Maritime skills	<a href="https://www.pfri.uniri.hr/web/en/index.php">https://www.pfri.uniri.hr/web/en/index.php</a>
3.6	University of Rijeka	Academia	1. University/ Polytechnic	Public	Rijeka	Croatia	engineering, technology, economics, law and management	Faculty of Maritime Studies	Maritime skills	<a href="http://iuri.uniri.hr/const_edu/faculty-of-maritime-studies/">http://iuri.uniri.hr/const_edu/faculty-of-maritime-studies/</a>
3.7	Ministry of Physical Planning, Construction and State Assets	Government	3. Public Authority	Public	Zagreb	Croatia		Institute for Spatial Development	Maritime Spatial Planning	<a href="http://hzpr.hr/">http://hzpr.hr/</a>
3.8	Croatian Institute of Oceanography and Fisheries (IZOR)	Academia	2. Research Organisation		Split	Croatia	sea exploration: physical, chemical, geological, biological and fisheries (participation in Adriatic plus)		Maritime Spatial Planning	<a href="http://www.izor.hr/web/guest/home;jsessionid=D610D38E056CAEBD7F751305E33D5743">http://www.izor.hr/web/guest/home;jsessionid=D610D38E056CAEBD7F751305E33D5743</a>
3.9	Institute for Physical Planning Region of Istria	Academia	20. Other		Pula	Croatia			Maritime Spatial Planning, Integrated Coastal Management	<a href="http://www.istra-istria.hr/index.php?id=1556">http://www.istra-istria.hr/index.php?id=1556</a>
3.10	University of Dubrovnik	Academia	1. University/ Polytechnic	Public	Dubrovnik	Croatia		Maritime Studies	Maritime skills	<a href="http://web.unidu.hr/odjeli.php?idizbornik=544">http://web.unidu.hr/odjeli.php?idizbornik=544</a>
3.11	Croatian Maritime Industry Competitiveness Cluster	Industry	4. Cluster		Zagreb	Croatia			Maritime skills	<a href="http://www.marc.hr">www.marc.hr</a>
3.12	Mare Nostrum-Croatian Shipowners' association	Industry	9. Association or Federation	Private	Zagreb	Croatia			Maritime skills	<a href="http://www.csamarenostrum.hr">www.csamarenostrum.hr</a>

## Mapping - Topic 3

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority	Location Legal status: public; private; other	City	Country	Specific characteristics RTD activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
3.1	University of Bologna	Academia	1. University/ Polytechnic	Public	Ravenna	Italy	Integrated coastal management	Inter-Departmental Centre for Research in Environmental Sciences (CIRSA)	Integrated coastal management	<a href="https://centri.unibo.it/cirsa/en/centre">https://centri.unibo.it/cirsa/en/centre</a>
3.2	University OF Bologna	Academia	1. University/ Polytechnic	Public	Bologna	Italy	Professional Master programme in Maritime and Port and Logistic Law - 5597		Maritime Spatial Planning	<a href="https://www.unibo.it/en/teaching/professional-master/2019-2020/maritime-port-and-logistics-law">https://www.unibo.it/en/teaching/professional-master/2019-2020/maritime-port-and-logistics-law</a>
3.3	University of Venice	Academia	1. University/ Polytechnic	Public	Venice	Italy	Maritime and Marine Governance and Services	Department of Design and Planning in Complex Environments	Maritime Spatial Planning	<a href="http://www.iuav.it/">http://www.iuav.it/</a>
3.4	National Research Council-Institute of Marine Sciences (CNR-ISMAR)	Academia	2. Research Organisation	Public	Venice	Italy	oceanography • □ Geology and geophysics • □ Coastal systems and human impacts • □ Climate and paleoclimate • □ Ecosystems and		Maritime Spatial Planning	<a href="http://www.ismar.cnr.it/">http://www.ismar.cnr.it/</a>
3.5	University of Salento	Academia	1. University/ Polytechnic	Public	Salento	Italy	(Participation in ActionMed)		Maritime Spatial Planning	<a href="https://www.unisalento.it/">https://www.unisalento.it/</a>
3.6	National Institute of Oceanography and Experimental Geophysics (OGS)	Academia	2. Research Organisation	Public	Sgonico	Italy	(Experimental, Autonomous Systems, Coastal), Biogeochemistry, Marine Biology, Modeling of	Division of Oceanography	Maritime Spatial Planning	<a href="https://www.inogs.it/en/content/division-oceanography">https://www.inogs.it/en/content/division-oceanography</a>
3.7	Euro-Mediterranean Centre on Climate Change	Academia	2. Research Organisation	Public	Lecce	Italy	Computing, Climate Simulations and Predictions, Economic Analysis of Climate Impacts and Policy, Impacts on Agriculture, Forests, and Ecosystem Services, Ocean Modeling and Data Assimilation, Ocean Predictions and Applications, Risk		Maritime Spatial Planning	<a href="https://www.cmcc.it/">https://www.cmcc.it/</a>
3.8	Venice Port Authority	Government	3. Public Authority		Venice	Italy	Participation in ADRIPLAN		Maritime Spatial Planning	<a href="http://www.port.venice.it">http://www.port.venice.it</a>
3.9	Italian National institute for Environmental Protection and Research (ISPRA)	Academia	2. Research Organisation	Public	Venice	Italy	protected species, designation & management of MPAs, fishery research & management, pollution monitoring (participation in		Maritime Spatial Planning	<a href="https://www.venezia.isprambiente.it/">https://www.venezia.isprambiente.it/</a>
3.10	Water research institute (IRSA)	Academia	2. Research Organisation		Bari	Italy	protection of water resources; ii) development of methodologies and technologies for water and		Maritime Spatial Planning	<a href="https://www.cnr.it/en/institute/069/water-research-institute-irsa">https://www.cnr.it/en/institute/069/water-research-institute-irsa</a>
3.11	University of Padova	Academia	1. University/ Polytechnic		Padova	Italy	Participation in KNOWSEAS		Maritime Spatial Planning, Integrated Coastal Management	<a href="https://www.unipd.it/en/">https://www.unipd.it/en/</a>



Mapping - Topic 3

										<a href="http://www.economia.unipd.it">www.economia.unipd.it</a>
3.12	University of Padova	Academia	1. University/ Polytechnic	Public	Padua	Italy		Dipartimento di Scienze Economiche e Aziendali "Marco Fanno" - Department of Economic and Business Scienze "MarcoFanno"	Sustain knowledge exchange and business support through community development , promotion of joint innovation activities to foster sustainable product and process innovation in the field of blue economy, support to technology transfer among research organizations and firms to enhance business competitiveness within the blue economy / value chain	
3.13	Cetacea Foundation	Civil society	6. NGO				large marine vertebrates (cetaceans, turtles and sharks) (participation in ADRIATICPLUS)		Maritime Spatial Planning	<a href="http://www.netcet.eu/">http://www.netcet.eu/</a>
3.14	Port of Bari	Industry	19. Port authority	Public	Bari	Italy			Maritime Skills	
3.15	University of Trieste	Academia	1. University/ Polytechnic	Public	Trieste	Italy	Engineering and Aechitecture		Maritime Skills	<a href="https://corsi.units.it/en/in04/naval-architecture-marine-engineering">https://corsi.units.it/en/in04/naval-architecture-marine-engineering</a>
3.16	Ministry of the Environment	Government	3. Public Authority	Public		Italy			MSP, environmental protection	
3.17	"Parthenope" University of Naples	Academia	1. University/ Polytechnic	Public		Italy		Sciences and Technology Department	MSP and ecosystem accounting	
3.18	Emilia Romagna Region	Government	3. Public Authority	Public		Italy			MSP and ICZM	
3.19	Corila	Academia	2. Research Organisation	private		Italy			MSP	
3.20	ISPRA Ambiente	Academia	2. Research Organisation	Public		Italy			Fisheries, aquaculture, MSP	

## Mapping - Topic 3

Nr	Name of institution	Quadruple helix	General Information Type of organisation: 1. University, 2. Research Organisation 3. Public Authority	Location Legal status: public; private; other	City	Country	Specific characteristics RTD activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Sources Website
3.1	Institute of Marine Biology	Academia	2. Research Organisation		Kotor	Montenegro	communities, fisheries biology, aquaculture, environmental protection, sustainable development, neurohistology, neurophysiology, neurochemistry, behavioural studies, extraction and identification of bioactive compounds from marine organisms (participation in Adriatic		Maritime Spatial Planning	<a href="http://www.ciesm.org/index.htm">http://www.ciesm.org/index.htm</a>
3.2	Regional Environmental Centre (REC)	Civil Society	20. Other		Podgorica	Montenegro	Empowerment and Stakeholder Engagement • □ Climate Change and Clean Energy Solutions • □ Education for Sustainable Development • □ Environment and Health • □ Environmental Law, Policy and Instruments • □ Natural Resources • □ Smart Cities and Sustainable Mobility • □ Water Resources Management (Participation in PANACEA)		Maritime Spatial Planning	<a href="http://montenegro.rec.org/index-eng.php">http://montenegro.rec.org/index-eng.php</a>
3.3	Public enterprise for coastal zone management of Montenegro	Academia	2. Research Organisation	Public	Budva	Montenegro	Coastal management and maritime issues, Regional planning and development		Integrated Coastal Management	<a href="http://www.morskodobro.com/">http://www.morskodobro.com/</a>
3.4	University of Montenegro	Academia	1. University/ Polytechnic	Public	Podgorica	Montenegro		Faculty of Maritime Studies Kotor	Maritime Skills	<a href="http://www.pfkotor.ac.me">http://www.pfkotor.ac.me</a>
3.5	University of Montenegro	Academia	1. University/ Polytechnic	Public	Podgorica	Montenegro		Faculty of Maritime Studies Kotor	Maritime Skills	<a href="http://www.pfkotor.ac.me">http://www.pfkotor.ac.me</a>
3.6	University of Montenegro Crne Gore	Academia	1. University/ Polytechnic	Public	Podgorica	Montenegro	Participation in HAZADR	Institute of Marine Biology	Maritime Spatial Planning	<a href="https://www.ucg.ac.me/ibm/">https://www.ucg.ac.me/ibm/</a>
3.7	Institute for transportation	Academia	2. Research Organisation	Public	Podgorica	Montenegro			Maritime Skills	<a href="https://intra.co.me/en/intra-montenegro/">https://intra.co.me/en/intra-montenegro/</a>
3.8	Ministry of Education of Montenegro	Government	3. Public Authority	Public	Podgorica	Montenegro			Maritime Skills	<a href="http://www.mpin.gov.me/en/ministry">http://www.mpin.gov.me/en/ministry</a>
3.9	Ministry of Sustainable development and Tourism	Government	3. Public Authority	Public	Podgorica	Montenegro				<a href="http://www.mrt.gov.me">www.mrt.gov.me</a>
3.10	Agency for Nature and Environment Protection	Government	3. Public Authority	Public	Podgorica	Montenegro				<a href="http://www.epa.org.me">www.epa.org.me</a>
3.11	Ministry of Transport and Maritime Affairs	Government	3. Public Authority	Public	Podgorica	Montenegro				<a href="http://www.msp.gov.me">www.msp.gov.me</a>
3.12	Zero Waste MONTENEGRO	Civil Society	6. NGO		Podgorica	Montenegro				<a href="https://www.zerowastemontenegro.me">https://www.zerowastemontenegro.me</a>

Mapping - Topic 3

Nr			General Information	Location			Specific characteristics			Sources
	Name of institution	Quadruple helix	Type of organisation: 1. University, 2. Research Organisation 3. Public Authority	Legal status: public; private; other	City	Country	RTD activities	Faculty/department, institute responsible	Relevant Maritime Economic Activities covered	Website
3.1	Faculty of Maritime Academic Studies	Academia	20. Other (College)	Private	Belgrade	Serbia		Nautics, Ship engineering, port management		<a href="http://www.vbs.edu.rs/en/">http://www.vbs.edu.rs/en/</a>

***ANNEX II***  
***Online Survey Questionnaires***

## **Ideal EUSAIR Study: Survey for Topic 1-Blue Technologies**

**The flagship for Topic 1-“Blue Technologies<sup>1</sup>” for the new programming period 2021-2027 is the following:**

*Fostering quadruple helix ties in the fields of Marine technologies and Blue Bio-technologies for advancing innovation, business development and business adaptation in Blue-Bio-economy.*

The strategic goals of the new period includes:

- Development of skilled human capital on Blue Technologies
- Creation of new jobs in the field of Blue Growth
- Know how transfer between EU and IPA countries
- Cooperation between research and public and private sectors, as well as users, to develop innovative products and services and technology transfer
- Compliance/adaptation of non-EU countries with EU Acquis
- Remove barriers to trade and investments

In this context, the aim of this questionnaire is to explore the views and perceptions of the stakeholders in respect to the content of projects to be funding, for the fulfilment of the aforementioned objectives in the Adriatic-Ionian Region, for the programming period 2021-2027.

Questionnaire consists of four parts:

- Part A aims at the evaluation of the importance of the priority axis for topic 1,
- Part B aims at the mapping of the strengths, weaknesses, opportunities and respectively the threats (S.W.O.T) of Marine technologies and Blue Biotechnologies in country level,
- Part C aims at the assessment of specific areas for project proposals and
- Part D aims at recording the project ideas of the stakeholders' and experts

Name/Surname	
Organization/Institution	
Position	
Country	

### **Part A: Priorities**

**A. How important are the following priorities for the Blue Technologies in your Country for the new programming period 2021-2027:**

**-Stronger RDI and cooperation among SMEs and between SMEs, large enterprises and research centres operating in the Adriatic-Ionian Macroregion**

- Very Important
- Important

---

<sup>1</sup> Incl. Deep sea resources (e.g. Marine renewable energy, Marine mining, Offshore oil & gas, Desalination), Green sea mobility, Bio-security, Blue-Bio-technologies, Cluster development, Scientific research-Researchers mobility-Spin-offs.

- Moderately Important
- Slightly Important
- Not Important

**-Increased networking between researchers, SMEs and clusters**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Increase of joint research papers and number of researchers exchanged within the macro-region**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Internationalization of SMEs in the region**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Easier access to finance and promotion of the creation of start-ups**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Part B: S.W.O.T Analysis**

**-A. Please name up to 5 strengths of the Marine technologies sector in your Country**

1.

2.

3.

4.

5.

- Please name up to 5 weaknesses of the Marine technologies sector in your Country

1.

2.

3.

4.

5.

- Please name up to 5 opportunities of the Marine technologies sector in your Country

1.

2.

3.

4.

5.

- Please name up to 5 threats of the Marine technologies sector in your Country

1.

2.

3.

4.

5.

- B. Please name up to 5 strengths of the Blue Bio-technologies sector in your Country

1.

2.

3.

4.

5.

- Please name up to 5 weaknesses of the Blue Bio-technologies sector in your Country

1.

- 2.
- 3.
- 4.
- 5.

- Please name up to 5 opportunities of the Blue Bio-technologies sector in your Country

- 1.
- 2.
- 3.
- 4.
- 5.

- Please name up to 5 threats of the Blue Bio-technologies sector in your Country

- 1.
- 2.
- 3.
- 4.
- 5.

### Part C: Project areas

**C. How important are the following Blue Technologies project areas in your Country to be eligible for funding in the new programming period 2021-2027:**

**-Encouragement and creation of clustering, especially of quadruple helix**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Research on blue technologies and prioritisation of its adoption by SMEs in the Macroregion**

- Very Important
- Important



- Moderately Important
- Slightly Important
- Not Important

**-One-stop-shops' operation for SMEs support.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Promotion of blue skills**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of educational and training programs (e.g. university and/or professional) to support the development of skilled human capital on Blue Technologies**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of a "cloud environment", for facilitating the matching between researchers and institutes and companies, and for setting up a scheme for supporting researcher mobility.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Reinforcement of networking, knowledge sharing & creation of databanks**

- Very Important

- Important
- Moderately Important
- Slightly Important
- Not Important

**-Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Exploring marine resources for industrial applications**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Integrated Blue Bio-technologies solutions for marine environmental services (e.g. Combating Marine Oil Spills, etc.)**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Development of novel eco-friendly end products that serve circular economy**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of innovative eco-friendly solutions for electricity generation from the sea waves, currents, thermal energy of the sea, wind, etc. for coastal and island regions**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Improve and clarify the legal framework for exploiting deep-sea water and marine mineral resources**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Development of a common multi-use deep water offshore platform able to integrate a range of functions (e.g. from the transport, energy, aquaculture, leisure, etc.) for the optimisation of the use of ocean space for different purposes**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of a sea observation network, in order to map and monitor the seabed and analyse potential deep sea resources which can contribute to strengthening economic activities in the blue sector.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Research platform marine robotics e.g. to strengthen unmanned marine vehicles for underwater and seabed operations**

- Very Important
- Important
- Moderately Important
- Slightly Important

- Not Important

**-Development of solutions to decarbonize (fishing) fleets (e.g. new materials, shore-based supply of electricity for vessels in ports and innovative propulsion modes and fuels, etc. (switch from diesel to Liquid Natural Gas and electric vessels))**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

#### **Part D: Stakeholders and experts project ideas**

**In this area you can display your project ideas or categories of ideas for the project areas that are important for your country for topic 1. Please provide a short description of your idea.**

## **Ideal EUSAIR study. Survey for Topic 2 – Fisheries & Aquaculture**

**The Flagship for Topic 2 – “Fisheries & Aquaculture” for the new programming period 2021-2027 is the following:**

*Promoting sustainability, diversification and competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits.*

It includes the following proposed Actions/ Projects

**For Fisheries:** Development of a strategy for small scale fisheries; Scientific cooperation on fisheries management; EU compliance and common standards and practices; Developing skills; Creation of a network for monitoring and predicting the distribution of alien species in the Adriatic-Ionian region and potential ways of exploitation; Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and *in-situ* monitoring of their efficiency.

**For Aquaculture:**

Administration: includes legal framework, licensing procedures and monitoring of the activity. Data is available from previous projects together with monitoring tools that are under development (e.g. TAPAS project);

Technology: Methodological and technical issues related to farming. Nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital.

Marketing (including Trade): refers to quality of the final product, promotion of the industry, market research etc, including the promotion of initiatives on marketing standards and healthy nutritional habits.

Trade: refers to facilitation of trade of fisheries and aquaculture products including seafood processing products, traceability, certification, harmonization of legislation.

In this context, the aim of this questionnaire is to explore the views and perceptions of the stakeholders in respect to the content of projects to be funding for the fulfilment of the aforementioned objectives in the Adriatic-Ionian Region, for the programming period 2021-2027.

The questionnaire consists of four parts:

- Part A aims at the evaluation of the importance of the priority axes for topic 2,
- Part B aims at the mapping of the strengths, weaknesses, opportunities and respectively the threats (S.W.O.T) of fisheries and aquaculture at country level, while
- Part C aims at the assessment of specific areas for type of actions/project proposals.
- Part D aims to collect specific project ideas or categories of ideas for the project areas that are important for your country and you feel that they are not yet covered by the proposed actions/project proposals.
-

## 1. Fisheries

### Part 1A: Priorities

How important are the following priorities for the fisheries sector in your Country for the new programming period 2021-2027:

**-Better management and sustainable exploitation of fish stocks.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Improvement of data collection and fish stock assessment.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Improved fisheries management & harmonization with EU regulations & international organizations.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Compliance & implementation of measures to combat illegal, unreported, unregulated fisheries and elimination of destructive fishing practices.**

- Very Important
- Important

- Moderately Important
- Slightly Important
- Not Important

**-Utilization of Unwanted and Unavoidable catches and discards.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Plans to improve professional skills of fishermen.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Combining fisheries with tourism activities.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

## **Part 1B: S.W.O.T Analysis – Fisheries**

**- Please name up to 5 strengths of the fisheries sector in your Country**

- 1.**
- 2.**
- 3.**

4.

5.

**- Please name up to 5 weaknesses of the fisheries sector in your Country**

1.

2.

3.

4.

5.

**- Please name up to 5 opportunities of the fisheries sector in your Country**

1.

2.

3.

4.

5.

**- Please name up to 5 threats of the fisheries sector in your Country**

1.

2.

3.

4.

5.

### **Part 1C: Project areas**

**How important are the following type of actions / project areas for fisheries in your Country to be eligible for funding in the new programming period 2021-2027:**

**- Development of a strategy for small scale fisheries.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important



**- Scientific cooperation on fisheries management**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- EU compliance and common standards and practices.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Utilization of Unwanted and Unavoidable catches and discards for production of high added value products.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Plans to improve professional skills of fishermen.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Creation of a network for monitoring and predicting the distribution of alien species in the Adriatic-Ionian region and potential ways of exploitation.**

- Very Important
- Important

- Moderately Important
- Slightly Important
- Not Important

**- Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and *in-situ* monitoring of their efficiency.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions to improve traceability, certification, harmonization of legislation.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of fishtourism and ichthyotourism (diversification activities).**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

## 2. AQUACULTURE

### Part 2A: Priorities

**A. How important are the following priorities for Aquaculture in your Country for the new programming period 2021-2027:**

**-Creation of new jobs**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-The harmonization of aquaculture standards**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-The compliance of non-EU countries with EU Acquis**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Improve the environmental footprint of aquaculture**

- Very Important
- Important
- Moderately Important
- Slightly Important

- Not Important

## **Part 2B: S.W.O.T Analysis – Aquaculture**

**- Please name up to 5 strengths of the aquaculture sector in your Country**

- 1.
- 2.
- 3.
- 4.
- 5.

**- Please name up to 5 weaknesses of the aquaculture sector in your Country**

- 1.
- 2.
- 3.
- 4.
- 5.

**- Please name up to 5 opportunities of the aquaculture sector in your Country**

- 1.
- 2.
- 3.
- 4.
- 5.

**- Please name up to 5 threats of the aquaculture sector in your Country**

- 1.
- 2.
- 3.
- 4.
- 5.

## **Part 2C: Project areas**

**How important are the following type of actions/project areas for Aquaculture in your Country, to be eligible for funding in the new programming period 2021-2027:**

**- Improve legal framework of aquaculture operations and licensing procedures (EU MS only).**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Harmonise legal framework of aquaculture operations and licensing procedures (non-EU MS only).**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Improve the environmental monitoring of the activity (EU MS only).**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Harmonise the environmental monitoring of the activity according to the EU legislation (non-EU MS only).**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Resolve methodological and technical issues related to farming (RAS, offshore aquaculture, processing etc).**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Resolve nutrition issues related to farming.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Resolve ichthyopathology and treatment issues related to farming.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Research on new species**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions on Marketing (including Trade) (campaigns, messages on TV, radio etc, participation in International fairs etc)**

- Very Important
- Important

- Moderately Important
- Slightly Important
- Not Important

**- Actions to improve quality of the final product**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions to promote the industry and improve of the image of aquaculture products**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions for market research, marketing standards and healthy nutritional habits.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions to facilitate trade of fisheries and aquaculture products including seafood processing products,**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions to improve traceability, certification, harmonization of legislation.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions to improve harmonization of legislation in the EUSAIR countries.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Actions to improve skills for the aquaculture sector.**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Part D: New Project ideas**

**Specific project ideas or categories of ideas for the project areas that are important for your country**

**-If you have specific project ideas or categories of ideas for the project areas that are important for your country, please analyse them briefly here.**

.....



## **Ideal EUSAIR study: Survey for Topic 3 – Maritime and Marine governance and services**

**The Flagship for Topic 3– “Maritime and Marine governance and services” for the new programming period 2021-2027 is the following:**

*Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and Blue Growth services.*

The strategic goals of the new period includes:

- The improvement of maritime and marine governance and services
- The creation of new jobs,
- The harmonization of standards
- The overcome of barriers and obstacles and
- The compliance / adaptation of non-EU countries with EU Acquis

In this context, the aim of this questionnaire is to explore the views and perceptions of the stakeholders in respect to the content of projects to be funding, for the fulfilment of the aforementioned objectives in the Adriatic-Ionian Region, for the programming period 2021-2027.

Questionnaire consists of four parts:

- Part A aims at the evaluation of the importance of the priority axis for topic 3,
- Part B aims at the mapping of the strengths, weaknesses, opportunities and respectively the threats (S.W.O.T) of Maritime and Marine governance and services in country level, while
- Part C aims at the assessment of specific areas for project proposals and
- Part D aims at recording the project ideas of the stakeholders' and experts

Name Surname	
Organization/Institution	
Position	
Country	

### **Part A: Priorities**

**A. How important are the following priorities for the Maritime & Marine Governance and services in your Country for the new programming period 2021-2027:**

**- Enable the sustainable blue growth development of coastal and island communities**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Improve governance of maritime space and creation of appropriate tools and services to improve the management capacity of competent authorities**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Harmonization and development of common standards for maritime space governance**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Improve skills and career development in blue economy**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Strengthening networks establishment of academics, training organizations and professional organizations of maritime sectors in the macroregion**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Part B: S.W.O.T Analysis**

**- Please name up to 5 strengths of the Maritime & Marine Governance and services in your Country**

1.

2.

3.

4.

5.

**- Please name up to 5 weaknesses of the Maritime & Marine Governance and services in your Country**

1.

2.

3.

4.

5.

**- Please name up to 5 opportunities of the Maritime & Marine Governance and services in your Country**

1.

2.

3.

4.

5.

**- Please name up to 5 threats of the Maritime & Marine Governance and services in your Country**

1.

2.

3.

4.

5.

### **Part C: Project areas**

**C. How important are the following Maritime & Marine Governance and services project areas in your Country to be eligible for funding in the new programming period 2021-2027:**

**- Development of research platforms for combating marine litter pollution**

• Very Important

• Important

- Moderately Important
- Slightly Important
- Not Important

**-Development of fishtourism and ichtyotourism as sustainable business activities**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Establishment of Transnational networks of cooperation for enabling community-led local development strategies for litter pollution**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Creation, expansion and upgrading of water data bases**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**- Establishment of Transnational networks of cooperation for enabling community-led local development strategies for supporting local start-ups and employment**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of educational and training programs (e.g. entrepreneurial courses, coaching etc) to support local entrepreneurship in blue economy**

- Very Important

- Important
- Moderately Important
- Slightly Important
- Not Important

**-Implementation of the new Directive on Maritime Spatial Planning**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Improve and clarify the legal framework for Allocated Zones for Aquaculture**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Improve and clarify the legal framework for Marine Protected Areas (MPAs)**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Improve and clarify the legal framework for exploiting deep-sea water and marine mineral resources**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of climate change adaptation plans for coastal and island regions**

- Very Important
- Important
- Moderately Important

- Slightly Important

- Not Important

**-Development of circular economy projects to ports and coastal and island regions**

- Very Important

- Important

- Moderately Important

- Slightly Important

- Not Important

**-Establishment of monitoring systems to support the management of marine and coastal areas by local communities (e.g. indicator system)**

- Very Important

- Important

- Moderately Important

- Slightly Important

- Not Important

**Development of appropriate management tools (e.g. equipment, software etc) to improve local authorities management capacity of coastal and island areas.**

- Very Important

- Important

- Moderately Important

- Slightly Important

- Not Important

**Establishment of consultation mechanisms to involve local communities and business to the design and implementation of marine and maritime plans of coastal and island areas**

- Very Important

- Important

- Moderately Important

- Slightly Important

- Not Important

**Development of education and training programs on coastal and maritime and marine space management for improving the capacity of regional authorities**

- Very Important

- Important
- Moderately Important
- Slightly Important
- Not Important

**Improve skills' development of the manpower in the maritime sector (e.g. education and training programs)**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Development of common accreditation systems for marine and maritime professions (e.g. yacht masters)**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of activities for the promotion of maritime professions and the attraction of the new generation manpower (e.g. campaigns)**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**-Development of transnational internship programs for supporting skills exchange and mobility in the sectors of Blue Economy**

- Very Important
- Important
- Moderately Important
- Slightly Important
- Not Important

**Part D: Stakeholders and experts project ideas**

**In this area you can display your project ideas or categories of ideas for the project areas that are important for your country for topic 3. Please provide a short description of your idea.**



***ANNEX III***  
***Summary of the focus groups' results***

EUSAIR Pillar 1 Blue Growth Focus Group  
“Marine and Maritime Governance and Services  
in the Adriatic – Ionian macro-region”

Date: Jan 19, 2021 Time 10:00 - 13:00 pm CET (online event)

---

A focus group (FG) discussion on the Marine and Maritime Governance and Services in the Adriatic – Ionian macro-region was organised with experts from Greece, Italy and Croatia representing Academia (2), Research and Technological Development (RTD) stakeholders (6), as well as the public sector (2). The meeting was attended by the European Commission (DG MARE) and CPMR representatives as well as the EUSAIR Facility Point Greece Project Partner Coordinator, the EUSAIR Pillar 1 Coordinator and members of the EUSAIR Pillar 1-Blue Growth Monitoring and Evaluation Consultant.

The focus group was held in the framework of the EUSAIR Pillar 1 “Blue Growth”-related study "Facilitating and fostering the design and implementation of EUSAIR flagship actions and projects in the Adriatic-Ionian macro-region" (Acronym: Ideal EUSAIR) which is in progress, carried out by the EUSAIR Pillar 1 Monitoring and Evaluation Consultant (LKN ANALYSIS Ltd.- University of the Aegean).

The FG consisted of three phases: the **first** one concerned an introduction to the “Ideal EUSAIR” study (EUSAIR Pillar 1 Blue Growth-related study) and a brief explanation of the Flagships for the programming period 2021-2027 relevant to this topic. The **second** one concerned the presentation of the survey’s results conducted in the context of the “Ideal EUSAIR” study, in order to identify project priorities for the new programming period and validate the SWOT analysis in the EUSAIR area, while in the **third** one participants had the opportunity to present briefly additional project ideas for the Adriatic – Ionian macro-region that can be implemented in the 2021-2027 period by various stakeholders.

During the focus group the participants verified and further enriched the strengths and weaknesses of the EUSAIR region related to the Maritime and Marine Governance topic, identified through the desk research conducted by the Pillar 1 M&E Consultant and presented in detail in the Pillar 1 Annual Monitoring report 2019.

In respect to the **strengths** of the macro-region the participants confirmed the significant contribution of Blue Economy sectors to the development and wealth of the EUSAIR area, stressing the scientific competencies, the human capital and the existence of research activities as positive forces. In the same context, the respondents, apart from the strong maritime tradition of the region, further highlighted the rich maritime heritage as a factor directly connected to the social wellbeing of local communities and at the same time as the source for the design and production of new services and products. All participants noticed the quality of marine environment and further the good state of natural capital which is considered a precondition for the further development of Marine

Economic Activities, while emphasized the trend towards fostering sustainable practices and services, a fact that contributed to the maintainability of environmental state.

As regards the **weaknesses**, the participants focused on the high pressures exerted to regional environments, due to the diaspora of anthropogenic activities taking place, a condition that leads to the overexploitation of the sea marine resources and at the same time increases pollution levels, urging for interventions.

In terms of legislation, the participants assessed the existing framework as ineffective, while they noted the administrative fragmentation, the delays in planning and implementation as well as the low public engagement. It was further commented that there is a “lack of understanding” among the different countries, a fact often mentioned to leading to different approaches and implementation levels especially for the non-EU countries.

As far as governance is concerned, it was noted that the absence of expertise at central and regional levels leads to the design of conflicting strategies and finally ineffective decision-making. What has not been mentioned in previous SWOT analyses for the areas and was particularly highlighted by the focus group participants is the “problematic information flow among stakeholders”. Participants characterized the relations among the range of stakeholders as “low quality of communication”, while the results of scientific projects produced are not communicated and disseminated to the wider public, indicating the need for simplifying the results and make “science for public”.

Finally, the lack of dedicated funding for the areas was perceived as a significant hindering parameter for the implementation of the Strategy.

In respect to the **opportunities** at EUSAIR level it was stressed that the upgrade of infrastructures and the harmonization of legislation are two favouring conditions. Alike, the acceleration of digitalization and the research on digital applications contribute to the better monitoring of EUSAIR environmental state and, as such, the availability of more precise data can lead to better decision-making. In addition, the development of ecosystem services such as tourism, fisheries and aquaculture can become the core of sustainable development.

Regarding the human capital it was stated that the effective management of coastal and insular areas will lead to “brain gain” and reverse the trend observed during the period of financial recession, when well-educated personnel left their countries due to the unemployment barrier. The conservation of marine biological diversity and the creation of synergies among the EUSAIR countries focusing on creative and cultural industries are two thematic areas that can generate opportunities and alternative business models. Furthermore, it was suggested that the Blue Growth Pillar could be perceived as a horizontal framework employing the role of coordinator among the four Pillars of the Strategy, while the European Green Deal can be used as the context that set new conditions and challenges for the production and mobility. Finally, the new programming period 2021-2027 was assessed as an opportunity for the area.

In terms of **threats** two group factors were identified. The first one concerns exogenous factors and events such as the economic crisis generated due to the COVID-19

pandemic. It is noted that the wider area has not totally recovered from the economic crisis of 2010. Furthermore, the area is open to the high competition of non-EUSAIR countries. Finally, an endogenous threat is the problematic implementation of the projects and more precisely there are gaps in implementation and miscoordination of projects, implying the existence of similar projects running in parallel. This leads to inefficient use of financial sources and the replication of research.

In terms of *project ideas* for the new programming period the survey revealed two trends. The first one concerns the need for projects that would assist the EUSAIR countries to implement the existing legislation such as the new Directive on MSP, the framework for Allocated Zones for Aquaculture and Marine Protected Areas, while the second one the development of climate change adaptation plans and circular economy projects.

The focus group further stressed the need for developing common guidelines and tools for the United Nations Sustainable Development Goals (SDGs), climate adaptation and greening of Blue Growth sectors, shared data systems as well as means to better link academia, with competent authorities, industry and local communities. Awareness raise and involvement of citizens through for example crowdsourcing techniques for data collection were also suggested.

## EUSAIR Pillar 1 Blue Growth Focus Group

### “Aquaculture in the Adriatic – Ionian macro-region”

Date: January 27, 2021 Time 13:30 - 17:00 pm CET (online event)

---

A focus group (FG) discussion on the Aquaculture in the Adriatic – Ionian macro-region was organized with experts from Albania, Bosnia & Herzegovina, Croatia, Greece, Italy and Slovenia representing Academia/Research and Technological Development (RTD) stakeholders (5), NGOs (1), Industry (3), Fisheries Local Action Groups (FLAGs) (1) as well as the public sector (3). The meeting was attended by European Commission (DG MARE) and CPMR representatives as well as the EUSAIR Facility Point Greece Project Partner Coordinator, the EUSAIR Pillar 1 Coordinator and Deputy Coordinator and team members of the EUSAIR Pillar 1-Blue Growth Monitoring and Evaluation Consultant.

The focus group was held in the framework of the EUSAIR Pillar 1 “Blue Growth”-related study "Facilitating and fostering the design and implementation of EUSAIR flagship actions and projects in the Adriatic-Ionian macro-region" (Acronym: Ideal EUSAIR) which is in progress, carried out by the EUSAIR Pillar 1 Monitoring and Evaluation Consultant (LKN ANALYSIS Ltd.- University of the Aegean).

The FG consisted of three phases: the **first** one concerned an introduction to the “Ideal EUSAIR” study (EUSAIR Pillar 1 Blue Growth-related study) and a brief explanation of the flagships for the programming period 2021-2027 approved by the EUSAIR Governing Board in June 2020 for embedding in the European Structural and Investment Funds (**ESI**) and the Instrument for the Pre-Accession Assistance (**IPA**). The **second** one concerned the presentation of the survey’s results conducted in the context of the “Ideal EUSAIR” study, in order to identify project priorities for the new programming period and validate the SWOT analysis per country in the EUSAIR area, while in the **third** one participants had the opportunity to present briefly additional project ideas for the Adriatic – Ionian macro-region that can be implemented in the 2021-2027 period by various stakeholders.

The survey revealed that **priorities** for the new programming period must focus on the creation of new jobs (89.47% very important and important), the compliance of non-EU countries with EU Acquis (86.84% very important and important), the improvement of the environmental footprint of aquaculture (86.84% very important and important) and the harmonization of aquaculture standards (81.58% very important and important).

In respect to the **SWOT analysis**, participants recognised as **strengths** the abundant clean water resources (marine and inland), favourable climatic conditions, significant know-how from both companies and RTD (Greece, Italy) and a lot of background work for marine spatial planning (Croatia, Greece, Italy). **Weaknesses** include red tape and bureaucracy, conflict with other users of the coastal zone, lack of an enabling policy environment (for EU MS) and no legal harmonisation of the non-EU countries to the EU legislation with lack of funds. There are numerous **opportunities** for implementation of aquaculture zoning (spatial planning), diversification of production with the breeding of

new endemic species, certification processes, labelling, traceability, application of new technologies for environmental sustainability and bioremediation as well as reduction of impacts. **Threats** include competition from non-EU countries, climate change, environmental pollution, bureaucracy and diseases.

The **project areas** must focus on actions to harmonise legal framework of aquaculture operations and licensing procedures of the non-EU MS (100% very important and important- **VI&I**), harmonise the environmental monitoring of the activity in the non-EU MS according to the EU legislation (75% VI&I), actions to improve quality of the final product (92.11% VI&I), improve the legal framework of aquaculture operations and licensing procedures (91.78% VI&I), improve the environmental monitoring of the activity (91.78% VI&I), resolve nutrition issues related to farming (86.84% VI&I), actions to improve traceability, certification, harmonization of legislation (84.21% VI&I), resolve ichthyopathology and treatment issues related to farming (81.58% VI&I), resolve methodological and technical issues related to farming (RAS, offshore aquaculture, processing etc- 81.58% VI&I), resolve methodological and technical issues related to farming (RAS, offshore aquaculture, processing etc - 81.58% VI&I), research on new species (71.05% VI&I), actions on Marketing (including Trade) (campaigns, messages on TV, radio etc, participation in International fairs etc - 84.21% VI&I), actions to promote the industry and improve of the image of aquaculture products (79.85% VI&I), actions for market research, marketing standards and healthy nutritional habits (86.84% VI&I), actions to facilitate trade of fisheries and aquaculture products including seafood processing products 89.47% VI&I), actions to improve harmonization of legislation in the EUSAIR countries (76.32% VI&I) and actions to improve skills for the aquaculture sector (78.95% VI&I).

In terms of **additional project ideas**, the discussion revealed many ideas that can be implemented by various stakeholders in the 2021-2027 programming period:

- Rapid detection and prevention of disease outbreaks in fish farms (Greece, Hellenic Agricultural Organization-Fisheries Research Institute, Dr. G. Krei).
- Data collection and environmental monitoring for the sustainability of the sector (Albania, Agriculture University of Tirana, Dr. Jerina Kolutari).
- Green technologies that can be applied to aquaculture (Italy, Halieus, Dr. Francesca Ottolenghi).
- Improve traceability and monitoring of the product quality, awareness of consumers and collaboration with them (Slovenia, National Institute of Biology, Marine Biology Station, Dr. Andreja Ramšak & Dr. Ziva Muhic).
- eDNA tools for sustainable management (Croatia, Dr Sandi Orlic).
- Introduction of a centralized database of genetic and other biological data on fish stocks and regular genetic monitoring of all certified fish farms (Bosnia & Herzegovina, University of Sarajevo. Dr. Belma Kalamujić Stroil).
- The good catch initiative in order to enhance consumption of fishery and aquaculture products (Croatia, FLAG "Istrian sole", Ms Aleksandra Marinović).
- The development of a novel IoT environmental monitoring system for use in Allocated Zones of Aquaculture development. The system will be coupled with advanced

modelling systems able to make a prognosis of harmful algal blooms, dispersion of the farm effluents and will allow the development of a flexible decision support system for the more efficient and dynamic management of the AZA (Greece, PANEMI, Ms. Vasiliki Gorou).

## EUSAIR Pillar 1 Blue Growth Focus Group

### “Blue Technologies in the Adriatic-Ionian macro-region”

Date: February 3, 2021 Time 10:00-13:30 pm CET (online event)

---

A focus group (FG) discussion on the Blue Technologies in the Adriatic-Ionian macro region was organised with experts from Greece, Italy, Croatia, Slovenia, Albania, Montenegro, Serbia and Bosnia and Herzegovina representing Academia (5), Research and Technological Development (RTD) stakeholders (3), Cluster/Technology Platforms (3), as well as the public sector (3). The meeting was attended by European Commission (DG MARE) and CPMR representatives as well as the EUSAIR Facility Point Greece Project Partner Coordinator, the EUSAIR Pillar 1 Coordinator and team members of the EUSAIR Pillar 1-Blue Growth Monitoring and Evaluation Consultant.

The FG consisted of three phases: the **first** one concerned an introduction to the EUSAIR Pillar 1 and a brief explanation of the Flagships for the Topic 1-Blue Technologies in the new programming period. The **second** one concerned the presentation of the survey's results conducted in the context of the “Ideal EUSAIR” study in order to identify project priorities for the new programming period, and validation of SWOT analysis for the area, while in the **third** one, participants focused on additional project ideas for the Adriatic – Ionian macro-region that can be implemented in the 2021-2027 period by various stakeholders.

The survey revealed that **priorities**, suggested by the stakeholders, for the new programming period must focus on: the increased networking between researchers, SMEs, and Clusters (94.8% very important and important-VI&I), the easier access to finance and promotion of the creation of start-ups (94.7% VI&I), the stronger RDI and cooperation among SMEs and between SMEs, large enterprises and research centres operating in the macro-region (94.7% VI&I), the increase of joint research papers and number of researchers exchanged within the macro-region (89.5% VI&I) and the internationalization of SMEs in the region (89.5% VI&I).

The **project areas**, suggested by the stakeholders, must focus on the following actions: research on Blue Technologies and prioritization of its adoption by SMEs in the macro-region (100% VI&I), Development of educational and training programmes (e.g. university and/or professional) to support the development of skilled human capital on Blue Technologies (94.8% VI&I), Exploring marine resources for industrial applications (94.8% VI&I), Development of novel eco-friendly end products that serve circular economy (94.7% VI&I), Promotion of blue skills (89.5% VI&I), Development of a “cloud environment”, for facilitating the matching between researchers and institutes and companies, and for setting up a scheme for supporting researcher mobility (89.5% VI&I), Reinforcement of networking, knowledge sharing & creation of databanks (89.5% VI&I), Development of a sea observation network, in order to map and monitor the seabed and analyze potential deep sea resources which can contribute to strengthening economic



activities in the blue sector (89.5% VI&I), Development of solutions to decarbonize (fishing) fleets (e.g. new materials, shore-based supply of electricity for vessels in ports and innovative propulsion modes and fuels, etc. (switch from diesel to Liquid Natural Gas and electric vessels)) (84.2% VI&I), Encouragement and creation of clustering, especially of quadruple helix (84.2% VI&I), Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries (78.9% VI&I), Improve and clarify the legal framework for exploiting deep-sea water and marine mineral resources (78.9% VI&I), Development of innovative eco-friendly solutions for electricity generation from the sea waves, currents, thermal energy of the sea, wind, etc. for coastal and island regions (73.7% VI&I), Development of a common multi-use deep water offshore platform able to integrate a range of functions (e.g. from the transport, energy, aquaculture, leisure, etc.) for the optimization of the use of ocean space for different purposes (73.6% VI&I), One-stop-shops' operation for SMEs support (68.4% VI&I), and Research platform marine robotics e.g. to strengthen unmanned marine vehicles for underwater and seabed operations (63.2% VI&I).

In respect to the **SWOT analysis**, participants recognised as **strengths** the existing expertise & longstanding R&D activity, the willingness of the EC to deal with Blue Growth & Blue technologies, the extensive experience in traditional maritime sectors (e.g. shipping, shipbuilding, offshore industry), the long tradition in aquaculture in the macro-region, the facilitating & supporting BB development, the extended coastline and diverse marine wild life as well as the fact that scientists & researchers are well connected through networks in BB (e.g. Horizon projects, Ocean4Biotech, etc.). **Weaknesses** include the lack/insufficient support in terms of funding & marketing operations, weak technology transfer & relatively low innovation capacity in certain areas, fragmented sector, lack of national knowledge & expertise in certain countries in maritime technologies, and inadequate/lack of legislation in the EUSAIR area, under which Blue technologies could be developed. There are **opportunities** for participation in EU funded programmes, new boost for investments, employment opportunities & development of new skills, innovative applications, opportunities for development of Blue Technologies in inland waters for landlocked countries. **Threats** include economic crisis, the COVID-19 pandemic, intense competition<sup>1</sup>, lack of funding/From the R&D sector into business/Scale up problems, as well as not enough training in the field, bureaucracy, sea-use conflicts due to the lack of MSP, and lack of prioritisation of the sector for certain countries.

In terms of **additional project ideas**, proposed by the stakeholders, the discussion revealed many ideas that can be implemented in the next programming period:

- Production of new anti-bio fouling compounds leading to a lower energy consumption in the shipping.
- Development of solutions to decarbonize all the maritime mobility activities (e.g.: fishing & aquaculture vessels, ships, yachts), including all the relevant stages (i.e.: development, operation, and end of life).

---

<sup>1</sup> From non-EU countries in Blue Technologies, rival EU states in BB.

- Establishment of a network of Blue Career Centres in the EUSAIR countries aiming to attract young people and experienced workers and fill existing skills' gaps by supporting activities that will increase employability in key Blue sectors of the Adriatic – Ionian region.
- Development of international Master BB Programmes in the macro-region.
- Capitalization of previous project results.
- Creation of Circular Economy Action Plans for the territorial deployment of innovative solutions for creating circular economies through the valorisation of residual bioresource streams.
- Restoration actions for environmental restoration and blue biotech applications.
- Sophisticated systems (e.g. drones/autonomous technology systems) for monitoring, collection & transmission of environmental data.

## EUSAIR Pillar 1 Blue Growth Focus Group

### “Fisheries in the Adriatic – Ionian macro-region”

Date: February 15, 2021 Time 13:30 - 17:00 pm CET (online event)

---

A focus group (FG) discussion on the **Fisheries** in the Adriatic – Ionian macro-region was organised with experts from Albania, Croatia, Greece, Italy and Slovenia representing Research and Technological Development (RTD) stakeholders (5), NGOs (3), Industry (2) as well as a fisheries consultant (1). The meeting was attended by the EUSAIR Facility Point Greece Project Partner Coordinator, the EUSAIR TSG/Pillar 1 Coordinator and members of the EUSAIR Pillar 1-Blue Growth Monitoring and Evaluation Consultant.

The focus group was held in the framework of the EUSAIR Pillar 1 “Blue Growth”-related study "Facilitating and fostering the design and implementation of EUSAIR flagship actions and projects in the Adriatic-Ionian macro-region" (Acronym: Ideal EUSAIR) which is in progress, carried out by the EUSAIR Pillar 1 Monitoring and Evaluation Consultant (LKN ANALYSIS Ltd.- University of the Aegean).

The FG consisted of three phases: the **first** one concerned an introduction to the “Ideal EUSAIR” study (EUSAIR Pillar 1 Blue Growth related study) and a brief explanation of the flagships decided among the National and Pillar Coordinators and approved by the EUSAIR Governing Board for embedding in the European structural and investment funds (**ESI**) and the Instrument for the Pre-Accession Assistance (**IPA**). The **second** one concerned the presentation of the survey’s results conducted in the context of the “Ideal EUSAIR” study, in order to identify project priorities for the new programming period and validation of SWOT analysis per country for the area, while in the **third** one, participants had the opportunity to present briefly additional project ideas for the Adriatic – Ionian macro-region that can be implemented in the 2021-2027 period by various stakeholders.

In addition, the project Net Tag (<https://net-tag.eu>) was presented by Dr. Marisa Almeida, CIIMAR, Portugal as an inspiring innovative project that has developed and implemented a low cost, miniature and environmentally-friendly acoustic tags (transponders) for location of the fishing assets as well as the recovery system for this fishing gear. Novel acoustic tags are able to uniquely identify a lost fishing gear, precisely determine its position and facilitate its recovery. Also, a localization system (AUV/ROV) was developed that is easily deployed/operated from fishing vessels and by non-expert operators.

The survey revealed that **priorities** for the new programming period must focus on compliance & implementation of measures to combat IUU fisheries and elimination of destructive fishing practices (89.47% very important and important), utilization of Unwanted and Unavoidable catches and discards (89.47% very important and important), improvement of data collection and fish stock assessment (86.84% very important and important), Plans to improve professional skills of fishermen (86.84% very important and important), Better management and sustainable exploitation of fish stocks

(84.21% very important and important), Improved fisheries management & harmonization with EU regulations & International Organisations (81.58% very important and important), Combining fisheries with tourism activities (60.53% very important and important).

The **project areas** must focus on actions for the development of a strategy for small scale fisheries (100% very important and important- VI&I), actions to improve traceability, certification, harmonization of legislation (89.47% VI&I), plans to improve professional skills of fishermen (89.47% VI&I), Scientific cooperation on fisheries management (86.84% VI&I), EU compliance and common standards and practices (84.21% VI&I), Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and in-situ monitoring of their efficiency (84.21% VI&I), utilization of Unwanted and Unavoidable catches and discards for production of high added value products (81.58% VI&I), Creation of a network for monitoring and predicting the distribution of alien species in the Adriatic-Ionian region and potential ways of exploitation (81.58% VI&I), Development of fishtourism and ichthyotourism (diversification activities) (76.32% VI&I).

In respect to the **SWOT analysis**, participants recognised as **strengths** the abundant clean water resources (marine and inland), extended coastline (Croatia, Greece, Italy), tradition in fisheries (Croatia, Greece, Italy), fresh and high-quality products (Croatia, Greece, Italy, Slovenia). **Weaknesses** include low level of cooperation with scientists, old fleet, aging of fishermen. There are numerous **opportunities** for branding labelling and promoting consumption of local endemic species, new sustainable approaches with certification of the products and fishing gear improvements, better cooperation with scientific and research institutions, diversification, marketing, local development plans, fishing utilization of edible alien species. **Threats** include competition from non-EU countries, climate change, environmental pollution, bureaucracy and recreational fisheries.

In terms of **additional project ideas**, the discussion revealed many ideas that can be implemented by various stakeholders in the next programming period:

- Balancing healthy environment and current fisheries practices in the EUSAIR region- some Project ideas (Ana Štrbenac, Stenella consulting d.o.o., Croatia).
- Experience of Albania in marine litter, ghost nets and fishing tourism from previous projects. Suggestions for new projects:
  - Fish tourism (continuation and enhancement of the Tourismed project).
  - Actions for continuation or similar to the Project Derelict Fishing Gear with more areas involved.
  - Improve data collection from fisheries in Albania.
  - Actions to diversify income of fishermen (fishtourism) and improve the status of marine ecosystems, targeting actions to remove plastics and prevent ghost gears (Agriculture University of Tirana, Dr. Jerina Kolutari, Albania).
- Collaborating platforms of fisheries organisations for fish tourism and the key role of the organization of fishermen as cooperatives. Also, Green technology applied to fisheries (Italy, Halieus, Mr. Gabriele Verginelli).

- Development of a quality assurance standard for fish traded in Greek fish landing sites (Ms Kleio Psarrou, PEPMA, Greece).
- Exploitation of discards and other animal by-products from seafood processing in the EUSAIR region.
- New technologies to reduce marine litter pollution.