



## **D2.2 – Connecting MedBAN to Smart Specialisation Strategies (3S) and National Resilience Plans (NRP)**

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<b>Summary</b>
<p>MedBAN - Mediterranean Blue Acceleration Network will mobilize the Blue Economy SMEs to adopt processes and technologies for a greener, more digital, and more resilient economy.</p> <p>This report completes the previous one on the mapping of the blue economy ecosystem in the Mediterranean. It demonstrates how relevant the choice of the five blue economy sectors is, as well as the resulting challenges to which the selected SMEs will respond, in the light of national and regional policies.</p>

#### **DISCLAIMER**

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## List of acronyms

BIG	Cluster Tecnologico Nazionale Blue Italian Growth
CFP	Common Fishery Policy
CMIB	Cluster Maritimo de las Illes Balears
EC	European Commission
EMFF	European Maritime Fishery Fund
EMFAF	European Maritime Fishery and Aquaculture Fund
ERDF	European Regional Development Fund
EU	European Union
FdM	Federazione del Mare (Federazione del Sistema Marittimo Italiano)
FO	Forum Oceano
FOWE	Floating Offshore Wind Energy
GFCM	General Fishery Committee for the Mediterranean
ICT	Information and Communication Technologies
IMTA	Integrated Multi-Trophic Aquaculture
IUU	Illegal Unreported and Unregulated
MAG	Magellan
MedBAN	Mediterranean Blue Acceleration Network
MRE	Marine Renewable Energies
MSP	Marine Spatial Planning
MW	Megawatt
NRRP	National Recovery and Resilience Plan
OWE	Offshore Wind Energy
OWF	Offshore Wind Farm
PACA	Provence Alpes Côte d'Azur
PMM - TVT	Pôle Mer Méditerranée – Toulon Var Technologies
RAS	Recirculating Aquaculture System
R&D	Research and Development
SME	Small and Medium sizes Enterprises
WP	Work Package
3S	Smart Specialisation Strategies

## I. Context and methodology

The main objective of the Mediterranean Blue Acceleration Network (MedBAN) is to work as a one-stop shop that will mobilise SMEs in the blue economy to adopt processes and technologies to enhance their "twin transition transformation" towards a more resilient, greener, and digitalised blue economy, with the aim of strengthening the EU's strategic autonomy and resilience in several blue economy sectors. MedBAN aims to contribute to the materialisation of the objectives of the EU industrial strategy in the open cross-sectoral priority of the blue economy industrial ecosystem, which has a huge potential to be exploited to mitigate several strategic dependencies of the EU, both in terms of resources and technology. This deliverable is part of Work Package 2 (WP2) of which the Pôle Mer Méditerranée (PMM-TVT) is leader.

The aim of this WP is to establish a working basis and frame the scope of MedBAN before the delivery of services to selected SMEs begins. The outcome of this mapping will help to adapt and better design the open calls for SMEs, which will respond to the companies' priorities in "WP3 - Innovate and Transform" and "WP4 – Internationalisation". To achieve this objective, the consortium has mapped the blue economy ecosystem in the Mediterranean. In this first deliverable, the MedBAN consortium agreed to refocus the project's approach on five particularly relevant and common sectors of the blue economy:

- Sustainable aquaculture
- Sustainable fisheries
- Sustainable tourism
- Renewable marine energies
- Ports

Based on these five sectors, sixteen challenges have been established (3 /4 challenges per sector). SMEs wishing to respond to MedBAN open calls will need to address at least one of these challenges. Given the importance of these challenges for the project, it is essential to demonstrate their relevance.

The objective of this deliverable is to highlight the coherence between the MedBAN challenges and national and regional policies of each partner country of the consortium.

For this purpose, A distinction is made between general strategies (which affect 2 or more sectors) and sectoral strategies (which affect only one). A brief presentation of each of these strategies was required, followed by an explanation of the concrete link between them and the challenges set for the MedBAN project. In addition, a supplementary contribution was requested for partners to share their ideas concerning contacts with organisations in countries outside the MedBAN consortium; able to support the communication of the MedBAN opportunities in other European territories.

This deliverable is the combined work of all the partners Forum Oceano (FO), Cluster Marítimo e Logístico de Baleares (CMIB), Pôle Mer Méditerranée (PMM-TVT), Federazione Del Mare (FdM), Blue Italian Growth (BiG) and Strategis (STR)) who have each defined their policies in terms of the blue economy and demonstrated their coherence with the challenges of the MedBAN project.

## II. MedBAN alignment with Smart Specialisation Strategies (S3) strategies and National Resilience Plan (NRP)

### A. France

#### 1) General strategies

#### A) Strategies' presentation

##### France 2030

The France 2030 plan is intended to respond to the major challenges of our time, such as the ecological transition, and to prepare the future of our country. It is in line with the major French and European recovery plans that were launched during the health crisis, when the dependence of Europe and France was highlighted.

A total of 54 billion euros will be allocated to this policy over a period of 5 years with a view to catching up with France in certain strategic sectors such as energy, aeronautics, automobiles or even space. The aim of this strategy is to develop industrial competitiveness and innovations to satisfy France's thirst for independence in environmental, industrial, and technological terms, etc. Two priorities are set out in the Plan: reindustrialising the country and investing massively in breakthrough innovation.

To achieve this, half of the funding will be given to emerging actors such as SMEs, start-ups, unicorns, etc. and the other half to decarbonisation actions.

Because of its vocation to affect France as a whole, the France 2030 plan was quickly regionalised. It gave rise to the "Regionalised France 2030 Plan", which has the particularity of having a joint financing method between the State and the region in question. The regions have a certain knowledge of the reality on the ground and are undeniably close to the local players.

##### General objectives

10 main objectives have been established around 3 main principles for 2030:

➤ Better production

Revolutionise France's ability to produce energy, industrialise, move around and respect biodiversity to achieve carbon neutrality by 2030.

➤ Living better

To offer a better quality of life to the French population through a better diet and to promote this way of life abroad.

➤ Understanding the world better

Explore the world around us and push back the limits of our knowledge.

## European Maritime, Fisheries and Aquaculture Fund - National

For the period 2021-2027, the EMFF becomes EMFAF: the European Maritime, Fisheries and Aquaculture Fund. This strategy is certainly the most coherent with the objectives of the MedBAN project as it encompasses many challenges.

This strategy constitutes the financial lever for the implementation of the European Union's Common Fisheries Policy (CFP). This fund is part of an operational programme managed at national level by the French State. However, it has the particularity of being implemented through shared management between the State and the regions, which together have built this strategy for the future.

This European programme aims to ensure the environmental, economic, and social sustainability of fisheries and aquaculture and to provide EU citizens with a source of healthy food products. It also aims to make the fisheries sector more dynamic and to ensure a fair standard of living for fishermen.

The programme has a budget of €6 billion at EU level, including €567 million for France. Each member country has a dedicated budget envelope, the amount and allocation methods of which are defined by period.

### General objectives

The main priorities are set out in strategic objectives and actions. There are four of them:

- Objective 1: Promote sustainable fisheries and conservation of aquatic biological resources;
- Objective 2: Promote sustainable aquaculture, processing and marketing of fisheries and aquaculture products;
- Objective 3: Bringing Europe closer to its citizens by encouraging sustainable and integrated development of urban, rural and coastal areas and local initiatives;
- Objective 4: Strengthening international ocean governance to ensure that seas and oceans are safe, secure, clean, and sustainably managed.

The national programme therefore has a strong social and environmental dimension. The management of FEAMPA is shared between the State (the managing authority is the Directorate General for Maritime Affairs, Fisheries and Aquaculture - DGAMPA) and the Regions which are "intermediary bodies". The Regions will manage 57% of the FEAMPA envelope, i.e., €322 million. Their role is to ensure the proper management and security of the funds allocated to the programme in accordance with EU procedures and regulations.

Local strategies will also be launched around the blue economy and traditional sectors (Local Development by Local Actors - DLAL). To strengthen the territorial approach, the FEAMP allows the creation of local initiatives around a programme and specific actions. These territories are called LAGFA

(Local Action Group for Fisheries and Aquaculture). Measures related to innovation and biodiversity will henceforth be delegated and managed at regional level.

## European Regional Development Fund - Regional

The European Regional Development Fund (ERDF) is one of the financial instruments that contribute to the development of regions according to their territorial specificities. Its purpose is to strengthen economic and social cohesion in the European Union by correcting disparities between its regions and by promoting their economic attractiveness, by financing projects that are in line with these ambitions like investing the development of information and communication technologies, support the transition to a low-carbon economy, etc. The Commission has introduced a new element: the Just Transition Fund (FTJ), which corresponds to the objective of a decarbonised Europe (European Green Deal).

### Occitanie

Within the 2021-2027 programming period, France will benefit from a budget of €9.1 billion. The Occitanie Regional Programme ERDF, ESF+ has been allocated €829 million, of which €163 million is ESF+ (European Social Fund Plus) and €666 million is ERDF.

#### General objectives

The strategy focuses on the following 2 pillars:

- Promote a new development model: based on research and innovation, on local craft and industrial production, on local services to businesses, on optimal and reasoned use of digital technology, while preserving the environment, respecting resources and spaces, and exploiting the potential of the carbon-free economy;
- Promote a territorial rebalancing: guaranteeing a harmonious development of the territory, in terms of reception, services to the population, tourism development, access to the labour market, activities, etc.

These 2 pillars are divided into 4 priorities. These 4 priorities are provided with financial resources considering the thematic concentration required by the regulations, which prioritise SMEs, R&D and the digital, energy and ecological transition:

- Priority 1: Supporting economic recovery and encouraging the transformation towards a smart and innovative economy;
- Priority 2: Acting on the climate emergency and for a low carbon economy;
- Priority 3: Responding to the climate emergency by developing urban soft mobility;
- Priority 4: Training and support to promote the pathway to employment and business creation;
- Priority 5: Promote territorial rebalancing by reducing disparities and enhancing resources.

## PACA

Within the 2021-2027 programming period, France will benefit from a budget of €9.1 billion. The Provence-Alpes-Cotes d'Azur regional Programme ERDF, ESF+ has been allocated €615 million, of which €133,5 million is ESF+ (European Social Fund Plus) and €666 million is ERDF.

### General objectives

The strategy focuses on the following 2 pillars:

- Promote a new development model: based on research and innovation, on local craft and industrial production, on local services to businesses, on optimal and reasoned use of digital technology, while preserving the environment, respecting resources and spaces, and exploiting the potential of the carbon-free economy;
- Promote a territorial rebalancing: guaranteeing a harmonious development of the territory, in terms of reception, services to the population, tourism development, access to the labour market, activities, etc.

These 2 pillars are divided into 7 priorities of which the last 3 are territorialised. These 4 priorities are provided with financial resources considering the thematic concentration required by the regulations, which prioritise SMEs, R&D and the digital, energy and ecological transition:

- Priority 1: Supporting economic recovery and encouraging the transformation towards a smart and innovative economy;
- Priority 2: Acting on the climate emergency and for a low carbon economy;
- Priority 3: Responding to the climate emergency by developing urban soft mobility;
- Priority 4: Training and support to promote the pathway to employment and business creation;
- Priority 5: Revitalising town centres in rural areas and reducing inequalities in urban areas;
- Priority 6: In the Massif des Alpes: develop sustainable and diversified tourism, prevent natural risks, support biodiversity, local production of Alpine wood and sustainable mobility;
- Priority 7: A specific section dedicated to the Bouches-du-Rhône region, to support its industrial transition towards a climate-neutral economy with the Just Transition Fund.

## Regional Innovation Strategies - Occitanie

The Regional Innovation Strategies (RIS), which corresponds to the 3S, is a regional policy, collective and collaborative, which prepares and accompanies the transformation of companies and territories on the major economic and societal issues. This strategy, led by the Occitanie Economic Development Agency AD'OCC, helps, accompanies, and supports Occitanie companies in their innovations and transformations, thanks to numerous human, financial and technical means.

The Occitanie Region and its territories have long been committed to a proactive and ambitious policy of support for innovation, higher education, and research. In terms of innovation, Occitanie appears today as a successful region on a European scale. A global approach, in terms of research and higher education, economic development and innovation, the SRI is one of the pillars of the Occitanie Region's policy to support innovation, by:

- Meeting the challenge of employment in one of the most attractive regions in France;
- Deploying innovation in all its forms and economic performance in all territories;
- Preparing the jobs of the future and providing young people, employees, companies, and job seekers with skills adapted to a society and economy on the move.

The RIS is a means of identifying and highlighting the region's potential, with the following challenges:

- Boosting innovation by involving all the players who make up the region's innovation ecosystem;
- Increase regional dynamism and disseminate innovations more widely within the regional economic fabric;
- Respond to the major challenges facing society through innovation, in particular by developing new "green new deal" models;
- To ensure territorial balance and development through innovation.

### General objectives

8 Intelligent Specialisation Domains (ISD) have been selected for the period 2021-2027:

- Healthy, sustainable and territorialized food;
- Water economy and controlled management, uses and risks;
- Coastal and marine economy;
- Health of the future, well-being and ageing well;
- Intelligent and sustainable mobility.

Of which 3 ISDs with a transversal mission:

- Sustainable intelligent materials;
- Energy transition of territories and the regional economy;
- Big data, AI, and cybersecurity.

### Regional Interest Operations - PACA

The Region has set a strong ambition for the territory, which is to "Make the Provence-Alpes-Côte d'Azur region the most beautiful region in Europe and a model for sustainable and resilient economic development." By 2028, industry players aim to consolidate the regional industrial ecosystem by accelerating its operational performance (innovation, 4.0), its economic performance (competitiveness of companies, skills, and attractiveness of professions) and its environmental performance (ecological

and energy transition, decarbonisation, and deployment of new sectors. Innovation thus plays an active role in supporting growth in strategic areas characterised by high potential markets and segments. The dynamics of innovation are facilitated by the organisation of actors federated within the Operations of Regional Interest which cover each of the strategic sectors and which are aimed at companies and economic actors in the territories of the Southern Region (local authorities, universities, competitiveness clusters, etc.).

The Regional Interest Operations (RIO) allow a policy of specialisation in sectors of the future. They bring together players and concentrate financial resources to bring about the emergence and implementation of structuring projects. The RIOs have been strengthened with the 2022-2028 programme with the aim of broadening their field of action from the value chain and becoming RIO 2.0s that integrate objectives in terms of digital, industrial, ecological and energy transitions. With 650 projects analysed, 114 supported and more than 100 presented to public and private investors in the Financial Engineering Committee (assessment of the mandate, March 2021), the RIOs have established themselves as a project factory. The aim is to build an attractive and innovative regional economic environment for the region.

The RIOs will make it possible to:

- Mobilise 2 billion euros of public-private funding in strategic sectors;
- Attract 500 direct foreign investments;
- Create or perpetuate 80,000 jobs.

### General objectives

Each RIO in its field supports projects and has an ambition:

- Naturalness: to position the PACA as a leader in naturalness and quality food;
- Innovative therapy: to make the PACA a world leader in the therapies of tomorrow;
- Industries of the future: develop the industrial models of tomorrow through inter-sectoral cooperation;
- Energy of the future: develop the green economy to serve PACA's energy transition;
- Economy of the sea: structuring the naval and maritime sector to conquer new markets;
- Silver economy: create solutions for keeping the senior population in good health and at home;
- Tourism and creative industries: Maximising economic potential at the intersection of tourism and digital culture;
- Smart tech: Building the 1st Smart Region in Europe.

Each operation is co-piloted by an elected official and an industrialist to bring together both public and private interests and concentrate funding on the selected projects. Once selected, projects receive structuring support and engineering assistance (legal, financial, etc.) from RisingSUD and dedicated experts. This strategy is in line with European and national economic policies and mechanisms, in the forefront of which is France 2030, particularly through strategies to accelerate the decarbonisation of

industry or the recycling and reincorporation of recycled materials. The European and national funding sources of France 2030 are mobilised to finance the various RIOs.

## Climate Plan - PACA

The preservation of the Provence Alpes Côte d'Azur region as an emblematic territory must be a priority. This new Climate Plan "Keeping a COP ahead"; voted on 23 April 2021 is the continuation of the environmental policy of the Southern Region, initiated in 2017. The purpose is to make the PACA Region a model in the fight against global warming.

For the sea, 40 million euros are allocated to the preservation and restoration of marine biodiversity (restoring degraded coastal bottoms, preserving emblematic species, deploying ecological anchorages); to reconcile the maritime economy with the environment, at the level of ports, fishing and aquaculture, boating and diving and to adapt the coastlines to climate change, by creating a certification "Territory committed to the Mediterranean Sea", with 25% of coastal municipalities certified in six years.

### General objectives

It is based on 141 measures divided into 6 areas:

- Air
- Sea
- Land
- Energy
- Waste
- At home, in your daily life

## B) The goals in line with MedBAN's challenges

### France 2030

Only one of the main objectives of this national strategy is in line with several of the MedBAN challenges: "to become the leader in green hydrogen and renewable energy by 2030". This should be referred to in the various MedBAN sector analyses.

- Sustainable tourism

This point detailed by France 2030 is particularly in line with the sustainable tourism sector as the last challenge is to support the transformation of the sector regarding climate change. The reduction of CO2 emissions from tourism-related transport is obviously part of this and the switch to hydrogen will enable this.

### ➤ Marine Renewable Energies (MRE)

France has set itself the ambition of having at least two "gigafactories" of electrolysers and all the technologies necessary for the use of hydrogen on its soil. This objective goes hand in hand with a strengthening of the renewable energy industrial sector (photovoltaic cells, wind turbine floats, etc.). This objective is directly linked to the objectives of MedBAN regarding MRE and especially Offshore Wind Energy (OWE). In short, €2,300 million are granted to make France the leader in low-carbon hydrogen and develop cutting-edge renewable energy technologies.

All the challenges of this sector are targeted: from project development to synergies with other sectors. France's concrete activities in the field of MRE are particularly concerned with offshore wind energy. France has a strong development potential for these technologies, given the natural assets of its territory (11 million km<sup>2</sup> of waters under its jurisdiction). The resource is mainly concentrated off the coasts of Normandy, Brittany and Pays de la Loire, and there are also opportunities in the overseas territories, and in the Aquitaine, Languedoc-Roussillon, and Provence Alpes Côte d'Azur regions. Nuclear, hydrogen and renewable energies will enable France to produce a decarbonised, stable, and competitive energy.

### ➤ Ports

The ports are also targeted and join the challenges of MedBAN which aim at making ports greener and more digital. Solutions must be found to reduce the carbon footprint, make ships green by diversifying the supply of clean energy. This implies finding new alternative energies such as decarbonised hydrogen.

France 2030 focuses significantly on emerging actors.

Finally, France 2030 aims to capitalise on the remarkable dynamism of the French innovation ecosystem, particularly start-ups and industrial SMEs. To support tomorrow's growth and give France a head start, the Plan aims to entrust nearly half of the overall financial investment made by the State to challengers. In line with the recovery plan, France 2030 acknowledges that the future belongs largely to small, high-potential players, whether they are already present on the market, in a growth phase - or whether these projects are still at a more preliminary stage of development. France 2030 devotes a total of €15 billion to emerging actors, including €3 billion to invest in the capital of technology start-ups and the unicorns of tomorrow.

This provision is consistent with the overall objective of MedBAN which specifically targets SMEs to find solutions to adopt greener and more digitalised processes on issues related to the blue economy.

## **European Maritime, Fisheries and Aquaculture Fund - National**

Some objectives affect both the aquaculture and sustainable fisheries sectors, such as the following one: "Enable a sustainable blue economy in coastal, island and inland areas and promote the sustainable development of fishing and aquaculture communities". The purpose is to be able to respond to the challenges raised by the European Union regarding a new approach to a sustainable blue economy.

➤ Sustainable aquaculture

The challenge: "change farming practices and improve cultivation techniques" is in line regarding the aim of the strategy to promote sustainable aquaculture activities, by enhancing the competitiveness of aquaculture production, while ensuring that activities are environmentally sustainable in the long term. This objective will contribute to the implementation of the Aquaculture Plan for the Future (APF) and the EU objectives in terms of sustainable aquaculture development (EU Climate Law, Green Pact and Farm to fork strategy). The actions supported should make it possible to improve the maintenance and development of aquaculture activities, promote research and innovation, support the development of the sector, and increase shellfish, fish, algae, and organic production, improve prevention and management of climatic and environmental risks, etc.

➤ Sustainable fisheries

Regarding sustainable fisheries, several objectives can be listed. All the challenges of this sector are impacted.

The first challenge is: "decrease ship pollution". MedBAN intends to reduce CO<sub>2</sub> emissions by supporting transition towards low-carbon ships. The strategy aims to "improve energy efficiency and reduce CO<sub>2</sub> emissions by replacing or modernising the engines of fishing boats". This specific objective exclusively addresses the issue of improving energy efficiency in marine and inland fishing activities. It is implemented through support for re-engining (replacement or modernisation of a main or auxiliary engine) and innovation in low-carbon technologies for fishing vessel propulsion (e.g., trials of fuels such as liquefied natural gas, liquid biogas or hybrid or electric propulsion; preparatory research work on hydrogen power). This is perfectly in line with the MedBAN's desire to make ships greener.

The second challenge is to "fight illegal fishing and control access to fishing areas". It can be linked to the strategy's will to promote the effective control and enforcement of fisheries regulations, including the fight against IUU fishing, and reliable data for knowledge-based decision-making.

Finally, the last challenge intitled "sustainable value chain" is fully consistent with the objective to strengthen economically, socially, and environmentally sustainable fisheries activities. It is broken down into two sub-objectives: firstly, to achieve the objectives of the CFP through the economic viability and environmental and social sustainability of fishing enterprises, infrastructure, and collective facilities and, secondly, to improve the attractiveness of the fishing professions and to promote generational renewal in maritime and inland fishing.

Another objective can also correspond to this challenge. It aims to "promote the marketing, quality and added value of fisheries and aquaculture products, as well as the processing of these products". MedBAN wants to promote new transformation processes, use and application of fish wastes and residues in the value chain.

➤ Sustainable tourism

A particular objective of the strategy can be compared to the following challenge: "restore coastal environment to improve attractiveness". The title of the objective is: "contribution to the protection and

restoration of biodiversity and aquatic ecosystems", it must effectively enable the objectives of European environmental and fisheries regulations to be achieved, such as the good ecological status of marine ecosystems. It aims to preserve marine and coastal biodiversity through operations to protect and restore marine and coastal ecosystems, including by limiting the impact of activities; innovation, raising awareness and limiting the impact of fishing on the marine environment; reducing and managing waste from fishing and aquaculture; experimenting with local actions to protect and restore biodiversity and marine ecosystems, outside the scope of implementing European directives.

## European Regional Development Fund – Regional

### Occitanie

Two of the four priorities are of particular interest to us. The priority which aims to act on projects that contribute to the recovery, accelerate research and innovation, strengthen access to digital solutions and state-of-the-art equipment, or develop innovative solutions for increasingly efficient businesses. And the one which supports projects that respond to the climate emergency, act on biodiversity, prevent flood risks, preserve the coastline, decarbonise Occitanie by developing renewable energies, the circular economy and energy renovation.

#### ➤ Sustainable fisheries

The first challenge of the sector: "Decrease ship pollution" is targeted. The second priority of the strategy is to develop intelligent energy systems. This includes the production, distribution, and storage of green hydrogen. Thus, this provision is in perfect harmony with the MedBAN challenge which intends to support the transition towards low carbon ships and decarbonation by reducing fossil fuels and CO2 pollutions to increase the sustainability of the activity.

#### ➤ Sustainable tourism

This strategy pays particular attention to tourism in Occitanie, touching on all the MedBAN challenges of the sector.

The specific objective on biodiversity is in line with the first of these challenges: "Restore coastal environment to improve attractivity". More than half of the aquatic environments in Occitanie are not in good condition, for reasons of morphological degradation. The objective is to restore green and blue infrastructures, aquatic environments, and to deploy nature-based solutions (carbon capture, climate and water cycle regulation, life quality...). Territorial programmes for the restoration of green and blue infrastructures and the enhancement of biodiversity are being set up as part of this strategy. The protection, development and promotion of natural heritage and ecotourism, other than Natura 2000 sites, are part of this ERDF objective.

The blue, green, and black grids have the ambition to include the preservation of biodiversity in regional planning decisions, contributing to the improvement of the living environment and the attractiveness of tourism.

The second challenge, "Develop new sustainable offer", is linked to the specific objective on the competitiveness of SMEs, which implies investments in tourism SMEs and their development as well as that of the territory. Enhancing the image of the "Occitanie destination" implies reinforcing the attractiveness of tourism companies and territories: real estate investments linked to the upgrading of tourism companies in hotels, open-air hotels, and holiday villages: increase in reception capacity, support for investments in tourism companies to accompany transformations, innovation, etc.

Finally, the last challenge, "Support the sector transformation regarding climate change impact", is also in line with the strategy. This one focuses on the impacts of climate change and human activities on biodiversity and its contribution to the resilience of territories, the mitigation of global changes and their impacts.

➤ Marine renewable energies

The more general challenge "Project development" is concerned by the specific objective on renewable energies. Occitanie strategy aims to become the first positive energy region in Europe by 2050. It will therefore make every effort to achieve energy sobriety and efficiency, and to cover them with local renewable energy production. It should be pointed out that it does not specifically concern marine renewable energies but more globally renewable energies, nevertheless, the example of thermal energy. The production of energy from renewable sources and raising awareness of renewable energy are the keywords of this objective.

➤ Harbours

In the "Smart ports" challenge, the ERDF finances Smart grid projects in Occitanie. The specific objective concerning digital technology also relates to this challenge, a strategy of intelligent and digital territories is implemented. Undertake actions for the pooling and experimentation of digital uses and services, in the areas at stake in Occitanie: mobility, transport, environment, tourism.

Finally, the ERDF supports projects of transition towards the circular economy and waste prevention, which is also a point underlined by MedBAN in the "Green ports" challenge.

## **PACA**

The first priority aims to act on projects that contribute to the recovery, accelerate research and innovation, strengthen access to digital solutions and state-of-the-art equipment, or develop innovative solutions for increasingly efficient businesses. And the second which supports projects that respond to the climate emergency, act on biodiversity, prevent flood risks, preserve the coastline, decarbonise PACA by developing renewable energies, the circular economy and energy renovation.

➤ Sustainable fisheries

The first challenge of the sector: "Decrease ship pollution" is targeted. The aim of the ERDF is to promote sustainable multimodal urban mobility as part of the transition to a zero net carbon emission economy. By mobilising this specific objective, the Region supports infrastructures and equipment allowing the distribution and use of alternative fuels (from renewable energy sources and except for

fuels of fossil origin and biofuels), including those located in the depots of public passenger transporters. The electrification of ships at berth is an example. Thus, this provision is in perfect harmony with the MedBAN challenge which intends to support the transition towards low carbon ships and decarbonation by reducing fossil fuels and CO<sub>2</sub> pollutions to increase the sustainability of the activity.

➤ Sustainable tourism

The specific objective on biodiversity is in line with the first of these challenges: "Restore coastal environment to improve attractivity". Indeed, the Provence-Alpes-Côte d'Azur region is exposed to numerous natural risks: flooding and marine submersion, coastal erosion, drought, and fire, etc. The rise in average temperatures and increasingly irregular rainfall patterns, combined with urban sprawl and the fragmentation of the region, will significantly increase its vulnerability. Given the importance of the Natura 2000 network in the region, projects located in these areas will be eligible for a bonus.

Finally, the last challenge, "Support the sector transformation regarding climate change impact", is also in line with the strategy. This one focuses on the impacts of climate change and human activities on biodiversity and its contribution to the resilience of territories, the mitigation of global changes and their impacts. For a more resilient regional territory, it is therefore essential to be able to maintain ecological functionalities, ensuring their restoration while reducing sources of pollution. Interventions on the green (vegetation), blue (rivers, marine environment), turquoise (wetlands) and brown (soils) grids are likely to strengthen regional ecological continuities and the ecosystem services they provide to increase the territory's resilience to climate change.

➤ Marine renewable energies

The challenge "Project development" is concerned by the specific objective "promoting renewable energies". The territory of Provence-Alpes-Côte d'Azur is the 3rd largest hydraulic region in France in terms of connected power and the 4th largest region in terms of floating offshore wind and thalassothermal potential. Although the region has a significant potential, only 10% of the total regional energy consumption was covered by renewable energies. To achieve this regional ambition of carbon neutrality, one of the major challenges is therefore to increase the production of renewable and recovered thermal and electrical energy by taking advantage of the territory's potential. This includes the installation of 100 floating wind turbines of 10 MW by 2030 and 200 by 2050 and 4300 MW of heat recovery (geothermal, thalassothermal, waste heat, etc.) in 2030 and 6546 MW in 2050.

➤ Harbours

In the "Green ports" challenge, the ERDF is financing low-carbon fuel systems. The aim is to support the decarbonisation of the region's ports, as CO<sub>2</sub> and pollutant emissions from maritime traffic are a major source of pollution, particularly in the Aix-Marseille Provence Metropolis.

## **Regional Innovation Strategies - Occitanie**

The third ISD: "Coastal and Maritime Economy" will be coherent with most of the MedBAN challenges. With 215 km of coastline, an exceptional natural environment with the presence of 400 km<sup>2</sup> of coastal lagoons, the Occitanie region offers a diversity of activities related to the coast and the sea which

contribute to the attractiveness of its territory, many measures are therefore taken to contribute to its valorisation. Finally, the 3 ISDs with a transversal mission are also in line with the project.

The development of marine resources has a major place in this regional strategy. Marine resources include aquaculture, fishing, and marine renewable energy; thus, this objective specifically targets each of these 3 MedBAN sectors.

➤ Sustainable tourism

Tourism in coastal areas is also targeted by this strategy. It recommends the necessary adaptation of maritime and coastal activities to ecological, energy, digital and human transitions and to climate change. This measure is in line with all the MedBAN challenges of this sector, which aim to breathe new life into tourism so that it can adapt to the new challenges it is facing today. The objective of the region is to achieve sustainable, efficient, resilient, safe, and innovative maritime and coastal activities, creating jobs, added value and attractiveness for the territory.

➤ Marine renewable energies

The ISD with a transversal mission: "energy transition of the territories and the regional economy" which is linked to the various challenges of this sector. Occitanie has the vocation to be a territory of experimentation for breakthrough innovations in the production of renewable energies: solar, biomass, renewable gases, hydrogen. As for marine renewable energies, they have a significant role to play, particularly floating wind turbines. The region's objective is to maintain its lead in the dynamics of the sectors of the future: hydrogen, floating offshore wind power, intelligent and sustainable mobility.

➤ Harbours

This strategy covers all challenges of this sector.

The challenge of greening and digitising transport and port activities is also one of the priorities of this strategy. The ISD aims to promote the emergence of "intelligent" and clean ships (pleasure craft, fishing, trade, services, nautical gear) that are safer, more operational, and more respectful of the environment, throughout their life cycle (smart & green ship), linked to the uses of ports. This will involve adapting infrastructures and services to make ports fluid, efficient, attractive, environmentally friendly, generators of new resources and well-integrated into their territory and linked to the new functions of ships.

The "Intelligent and sustainable mobility" ISD is also interesting to this sector. The Region has an important ecosystem of interest in intelligent and sustainable mobility and possesses major assets to address future challenges related to mobility such as multimodality, decarbonisation, and the autonomous vehicle. This will require a shift to green hydrogen (production, combustion, integration with uses, storage, and transport) and continued innovation in mobility-related technologies and applications. The objective is to make Occitanie an industrial region, leader in innovation for intelligent and sustainable mobility.

This strategy is also in line with the "**Resilient ports**" challenge as it aims to increase the added value and resilience of maritime and coastal activities through coastal development, digital, EOF, environmental impact measures, etc.

## **Regional Interest Operations - PACA**

As a major maritime region, the Provence-Alpes-Côte d'Azur region has a position of excellence in the naval industries. The transition to a more sustainable development requires the enhancement, protection and management of its natural marine and coastal heritage and the need to reconcile the maritime economy and the environment. The roadmaps concerning the RIO Economy of the sea, Energies for the future and Tourism and creative industries are particularly relevant to MedBAN's themes.

### ➤ Sustainable aquaculture

One of the axes of the "Blue Economy" RIO aims to accelerate innovations linked to interactions between biodiversity and marine infrastructures, to develop technologies that use biomimetic and bio-inspiration, and to continue the projects undertaken on blue biotechnologies (algae and micro-algae culture, etc.). This axis fits in with the "Improve aquaculture farms monitoring" challenge, which promotes the development of new technologies for the automation and monitoring of aquaculture plants.

### ➤ Sustainable fisheries

Another axis aims to reduce marine pollution and air emissions - "Zero Smoke" - by accelerating the deployment of the eco mobility offer and by supporting the development of autonomous ships. There is also a desire to strengthen mobility in specific segments of the region, including the maritime sector, firstly by supporting the emergence of small-scale territorial ecosystems, and secondly by focusing on maritime applications (ports, ships, logistics, etc.). The decarbonisation of industry and transport is also affected by the RIO energies of the future thanks to hydrogen. This is in line with MedBAN's will to support the transition towards low carbon ships and decarbonisation by reducing fossil fuels and CO2 pollution in "Decrease ship pollution" challenge.

The strategy also aims to support the mutations of the naval, shipping, cruising and cabotage sectors. This will require actions along the entire value chain, such as new propulsion methods. This objective matches the last "Sustainable value chain" challenge of this sector.

### ➤ Sustainable tourism

The tourism industry in the Provence-Alpes-Côte d'Azur region is a sector of excellence, an essential component of its economy and its international influence. This is why an RIO is dedicated to tourism. One of its objectives is to develop sustainable cultural and tourist offers and limit seasonality. To face the challenge of climate change, it is necessary to renew the offer and invent the economic and tourism model of tomorrow, to develop outdoor tourism, 4-season tourism - particularly in the Alpine territories - and to support the renewal of the facilities necessary for the transition of tourism offers and the creation of demonstrators. Similarly, the aim is to support the ecological transition of cultural stakeholders and

structures: limiting impacts, pooling resources, circular economy. This objective is therefore totally consistent with the challenge "Support the sector transformation regarding climate change impact".

➤ Marine renewable energies

The "Energy of Tomorrow" roadmap also presents interesting objectives regarding all the challenges of this sector. The adaptation of the economy to the energy transition requires a system approach, the integration of renewable energies, their intermittency, etc.

The Floating Offshore Wind sector is considered, the emphasis is placed here on the energy aspect of this sector with the coupling or complementarity between offshore wind and hydrogen, as well as the integration of production into energy systems (networks, storage, coupling with other renewable energies). The aim is to truly deploy floating offshore wind energy and structure a marine biodiversity economy in the Mediterranean basin.

➤ Harbours

The strategy encourages the promotion of competitive, clean, and resilient port infrastructures and logistics chains. Again, all the challenges in this sector are linked to the RIOs. The aim of the region is to accelerate the deployment of a port of the future, which guarantees the highest standards in terms of cybersecurity, environmental resilience, and security of the logistics chain. It intends to encourage the creation of port hubs for alternative fuels (LNG, hydrogen, etc.) and to make the region a territory of initiatives for coastal developments (ecological moorings, coastal protection, etc.).

## **Climate Plan - PACA**

Anchored in the DNA of the PACA region with its 1000 km of coastline, the sea is not just an economic and geographical asset. It is an entire part of our environmental heritage, the Mediterranean Sea, which is undergoing the full force of climate change, and which links us to the whole world. We owe it our constant attention. Deeply attached to the Mediterranean and all that it represents, the Region has made it the priority of its Climate Plan.

➤ Sustainable aquaculture

One of the measures in the Climate Plan aims to support research and experimentation aimed at replacing animal proteins/meals with plant proteins/meals in aquaculture fish feed. It corresponds to one of the measures mentioned in the challenge "change farming practices and improve cultivation techniques" which aims to foster sustainable breeding and develop novel feeds with protein from alternative sources.

The challenge: "raise awareness and improve social acceptability" is also in line regarding the following measure: strengthen traceability and quality of seafood. This will improve distribution and marketing. The objective of this plan, concerning aquaculture and fisheries, is that 100% of fishermen and aquaculturists should have a regional activity certificate every year.

➤ Sustainable fisheries

The aim of the climate plan is to promote environmentally friendly water sports: modernisation of water sports centres (high environmental quality buildings, energy and water saving, etc.), training of water sports centre managers. The objective is to modernise 2/3 of the water sports centres in 6 years.

The idea of installing maritime shuttles using alternative fuels in marinas to relieve road traffic on the coast is also part of the climate plan. These measures are in line with the first challenge: "decrease ship pollution". MedBAN intends, indeed, to reduce CO<sub>2</sub> emissions by supporting transition towards low-carbon ships.

➤ Sustainable tourism

Many initiatives are aimed at the tourism sector and correspond to all MedBAN challenges. The main objective of the Climate Plan is to contribute to the preservation of the seabed as a reservoir of biodiversity.

The first challenge of this sector: "Restore coastal environment" is linked to several initiatives to restore the coastal zone. Pollution sources must be controlled: this involves restocking experiments and the creation of new nurseries.

Restoration also involves preserving the emblematic species of the Mediterranean: Posidonia meadows (carbon sink), coral, large nares, etc. and the deployment of ecological moorings, particularly for large yachts and cruises.

Finally, the aim is to continue to preserve natural areas, particularly through the work of the Conservatoire du Littoral, and to participate in the management of 50% of the areas and protect them sustainably.

Several measures are linked to the second challenge "Develop new sustainable offer". The introduction of a sustainable tourism passport is one example.

Developing local and sustainable tourism is one of the priorities of the Climate Plan. This involves supplementing the tourism policy with "responsible" destinations and industries and contributing to an increase in the number of businesses with the "Regional Nature Park Values" label. A "Territories committed to the Mediterranean Sea" certification should also be created to enhance the commitment of local authorities to respond to maritime issues and strengthen their attractiveness. The objective of the strategy is to have 25% of coastal municipalities certified within 6 years. In addition, the development of "secondary" tourist sites will allow for a sustainable development experience while relieving the pressure on well-known tourist sites.

The plan also aims to raise awareness of the environment among citizens, elected officials, and technicians, in favour of the preservation of the sea and the Mediterranean coastline, and to support managers of tourist accommodation in taking the environment into account in their renovation work.

The last MedBAN challenge "Support the sector transformation regarding climate change impact" is also concerned by this strategy. Indeed, this strategy aims at adapting the coasts to climate change by encouraging solutions inspired by nature to redevelop the coastline and fight against its erosion. The plan targets 50% of coastal municipalities committed to adapting to climate change and/or signatories of the "beach of character" charter. In addition, the creation of Ecofestivals would allow the funding of major events to be conditional on the virtuous practices adopted.

➤ Renewable marine energies

As one area is devoted to energy, many measures relate to marine renewable energies. The Plan wishes to inaugurate the first floating wind farm at sea and to continue the development of commercial farms off the Gulf of Fos.

It also aims to become a leading region for hydrogen. To achieve this, it must develop the new generation of renewable energies: green hydrogen, storage, etc., by supporting local players and their projects to structure an industrial sector. The creation of a hydrogen fund will help accelerate the sector. These measures correspond to the "project development" challenge.

➤ Harbours

Finally, another measure aims to pursue the European certification "Clean Ports Active in Biodiversity". The long-term objective is to reach 100% of certified Clean Ports. This objective is in line with the MedBAN "green ports" challenge.

## 2) Sectoral strategies

### Sustainable aquaculture - Aquaculture plan

#### 1. Strategy presentation

*"Aquaculture is a priority. France is the second largest producer of aquaculture in Europe and this position must be strengthened",* said the Minister for the Sea, Annick Girardin. In the context of increasing demand for seafood products, the development of aquaculture in France is an issue of food sovereignty and economic development. This plan, which has been jointly drawn up by the State, the regions, and the professionals, defines the objectives, the support tools, and the obstacles to be removed for its development. At the national level, aquaculture products meet consumer demand for local and healthy products. These sectors also contribute to the development of coastal and rural areas, as they create jobs that cannot be relocated, within family businesses. The sustainable development of aquaculture, given its high growth potential, must therefore be a political priority.

The new 2021-2027 strategy aims to develop French aquaculture by maintaining a high level of economic and environmental performance in the sector. This dual performance is a real asset, which must be promoted and explained to our fellow citizens and supported through innovation.

The Aquaculture Plan for the Future benefits from the European Fund for Maritime Affairs, Fisheries and Aquaculture (EMFAF).

## General objectives

The new Aquaculture Plan 2021-2027 responds to the desire to develop sustainable, environmentally friendly, and economically efficient aquaculture. The actions planned by the Aquaculture Plan for the Future must contribute, directly or indirectly, to an increase in aquaculture production and an improvement in quality.

The national aquaculture strategy is thus presented in the form of 8 action sheets for 8 cross-cutting themes, defined based on the Commission's guidelines and supported by the EMFAF operational programme:

- Simplification of administrative procedures and access to space;
- Sanitary and animal health in aquaculture, and fish welfare;
- Research & innovation;
- Management of climatic, health, animal health and environmental risks;
- Promoting the economic development of the aquaculture sector;
- Attractiveness of professions and training;
- Increasing the added value of aquaculture products and the environmental performance of aquaculture enterprises;
- Collection and valorisation of **aquaculture data**;

## 2. The goals in line with MedBAN's challenges

The plan is part of the sectoral strategies, so it **relates only to the sustainable aquaculture sector**.

	Sustainable aquaculture		
Challenges	Change Farming practices and improve cultivation techniques	Raise awareness and improve social acceptability	Improve aquaculture farms monitoring
Aquaculture Plan	•	•	•

**All MedBAN challenges** of the sector match to the main action plans present in the 8 cross-cutting themes.

- **"Change farming practices and improve cultivation techniques"**

The strategy aims at several action plans. One of them is quite general: support local initiatives and the linking of actors aiming to better exploit the territory's resources and to objectify the environmental services rendered by these activities.

Another action plan is to identify new production areas and secure current areas for marine aquaculture as well as to encourage the diversification of species and production methods and secure them legally.

The Aquaculture Plan aims to support the adaptation of facilities: oxygenation, setting up water recirculation and returning the output water to the dam in the event of drought/heatwave, investing in the sheltering of shellfish production (closed-circuit facilities, oxygenation, pumping, salinity probe, etc.). All these solutions allow for the achievement of low environmental impacts plants and optimal production systems. The aim is to better protect aquaculture businesses against climatic risks and make them resilient to risks in general.

In the same way, another action plan aims to continue research and innovation work to reduce and optimise the use of inputs and effluents. On the one hand, on improvements in farming systems and practices, which consider environmental and economic aspects (water recirculation, objectification, and reduction of energy consumption, ITMA, aquaponics) and on the other hand, on the development of more efficient, more digestible, and sustainable feeds and the selection of more efficient animal strains.

- **"Raise awareness and improve social acceptability (consumer awareness)"**

This challenge relates to other action plans such as innovating in marketing (packaging, traceability, etc.), pursuing communication, at national and regional level, on the "local" character of aquaculture products and their nutritional benefits. In the context of the revision of European regulations, it is important to ensure that measures are included to promote products of French origin, including transformed products. The challenge is to face up to the competition from products imported from outside the EU.

In the same perspective, the strategy encourages the promotion of short marketing channels (tasting, AMAP, farm sales, markets, isolated sales points, platforms for linking producers and consumers). All these action plans will make it possible to improve the distribution and marketing of aquaculture products by promoting those originating from the European Union in a transparent way for the consumer.

The fight against plastic packaging is also targeted, and the Plan provides for research and development and innovation to develop alternatives to plastic and to recycle waste that cannot be reduced. The aim is to set up a collection and treatment system for plastic waste and other waste from shellfish farming activities and to develop new processed products and packaging techniques.

- **"Improve aquaculture farms monitoring"**

Aquaculture data have an important place in this Plan, as a cross-cutting theme is dedicated to them. The aim, in the long term, would be to have and make use of complete and reliable technical and scientific data on both the environment and the life cycle of the species. To achieve this and make it available to the aquaculture sector, it is necessary to centralise this data, based on a common collection method, through a platform accessible to all, the Plan gives the example of Géolittoral.

## Sustainable fisheries - Sustainable fisheries action plan

### 1. Strategy presentation

*"At a time when the issues of food sovereignty and European cohesion are back in the spotlight, I would like to remind you loud and clear of one of our assets: France is a country of fishermen"* said the Minister for the Sea, Annick Girardin.

The sector ranks third in Europe with a turnover of around two billion euros and represents 40 000 direct jobs and 100 000 indirect jobs. The fisheries sector is facing many challenges that require it to evolve and adapt to consider, for example, the consequences of Brexit, the necessary energy transition for vessels, the establishment of marine protected areas and the construction of wind farms. The government has allocated €100 million from the recovery plan for fisheries and aquaculture since 2020.

#### General objectives

The plan is structured around three axes:

- Improve knowledge of French fisheries resources;
- Modernising the sector and making it more competitive;
- Make the profession of fisherman more attractive.

It includes **twelve key actions**:

- Identify and gain a better understanding of all our fisheries resources by 2030, both in mainland France and in the overseas territories;
- Strengthen dialogue between professionals, scientists, elected representatives, the administration and NGOs;
- Facilitate the declaration of accidental catches of protected species;
- Make 100% of fishing activities compatible with the conservation objectives set for Natura 2000 areas;
- Bring our ambition of sustainable fisheries to the international level;
- Promote the renewal of the fishing fleet to have cleaner, safer and more attractive vessels: 25% modern and decarbonised fishing vessels by 2030;
- Enhance the value of fisheries by developing labels and new fisheries: 50% of French landings labelled in 2030;
- Encourage a new economic management in favour of fishing companies and operators;
- Promote the attractiveness of the overseas territories through an efficient structuring of the fishing industry;
- Simplify and modernise, by the end of the year, six procedures for fishing professionals;
- Encourage the development of maritime training and the promotion of professions;
- Reduce the occupational risks for fishermen and support their careers.

### 2. The goals in line with MedBAN's challenges

The plan is part of the sectoral strategies, so it relates **only to the sustainable fisheries sector**.

	Sustainable fisheries		
Challenges	Decrease ship pollution	Fight illegal fishing and control access to fishing areas	Sustainable value chain
Sustainable fisheries action plan	●	●	●

All MedBAN challenges of the sector match to the key actions.

- **"Decrease ship pollutions"**

For years, professionals have been expressing strong expectations for support in renewing their vessels, to make them cleaner, safer, and more comfortable. The French fleet is ageing: 65% of European ships are over 25 years old, and only 2% of new ships have been built in the last 5 years. The aim of the plan is therefore to launch a project to identify and activate the levers to renew 25% of fishing vessels by 2030.

The plan also aims to encourage shipowners to opt for less energy-intensive techniques and types of fishing vessel. This involves synergy between the National Committee for Sea Fisheries and Marine Breeding and research institutes to coordinate and strengthen the development of new, more sustainable, less energy-consuming and biodegradable fishing gear.

Partnerships with engine manufacturers from other sectors (transport, trade) should also be sought with a view to implementing a genuine R&D strategy in the field of low-carbon engines. All these key actions are in line with the MedBAN challenge which aims to encourage the transition towards low carbon ships.

Finally, a collection and recycling scheme for fishing nets and gear will be set up (extended producer responsibility type approval) which will eventually increase the sustainability of the activity by reducing direct pollution, facilitating identification, and combating ghost nets.

- **"Fight illegal fishing and control access to fishing areas"**

An entire key action in this strategy is devoted to the challenge of illegal fishing. At the international level, France also intends to promote the ambition of sustainable fishing that respects populations and resources. Because of their multiple environmental, economic, social and security impacts, overfishing and illegal, unreported, and unregulated (IUU) fishing activities are a global issue on which Europe has the capacity to act, with strong leadership from France.

At the Ocean Summit on 11 February 2022 in Brest, the President of the Republic announced the commitment of France and several European Union States to mobilise their state navies to fight against illegal, unreported, and unregulated (IUU) fishing activities. He invited all States that wish to join this initiative to support the States that are victims of this problem. This mobilisation will target as a priority the geographical areas most affected by this issue, such as the Gulf of Guinea. France will therefore

work with its international partners and international organisations to make these ambitions a reality and to structure the international community's response to the problem of IUU fishing to reduce overfishing as much as possible and ensure sustainable fishing practices at the global level.

- **"Sustainable value chain"**

The last challenge of the sustainable fisheries sector is also affected by the Sustainable Fisheries Plan. Although mandatory, the declaration of unwanted catches has revealed difficulties in implementation. Technical solutions are being examined, and the DECLIC project is one example. Its objective is to develop an automatic system for detecting by-catches which, while facilitating the reporting procedure, will guarantee the anonymity of operators. The use of on-board cameras to improve monitoring and knowledge of by-catches should also be pursued in partnership with professionals. All these technologies will have the effect of reducing unwanted catches.

The strategy aims to ensure that the fisheries sectors adapt to climate change and that they continue their efforts on several themes, in particular with regard to research and the deployment of new processes or solutions, products, equipment or innovative marketing approaches, such as the development of new markets (e.g. biotechnologies in the blue economy), the improvement of traceability, quality, the enhancement of products or the reduction of the use of plastics.

## **Marine renewable energies - Multiannual Energy Programme**

### **1. Strategy presentation**

The Multiannual Energy Programme (MPE) sets out the government's energy priorities for mainland France over the next 10 years, divided into two 5-year periods. Every 5 years the multi-annual energy programme is updated: the second 5-year period is revised, and a subsequent 5-year period is added. The present multi-annual energy programming covers 2019-2023 and 2024-2028.

As with greenhouse gas emissions, the strategy contributes to the reduction of atmospheric pollutant emissions through its measures to reduce energy consumption, with priority given to energy sources with the highest carbon content, and through the substitution of fossil fuels with renewable energy sources. The MPE thus has a positive effect on health protection. This MPE is part of the national low-carbon strategy adopted in October 2015 and is a tool for implementing the Paris Climate Agreement.

The energy transition must guarantee security of supply and competitiveness which will lead France to develop a more decentralised and flexible energy system. Through the strategy for the development of clean mobility, the MPE places particular emphasis on the field of transport, which is essential for achieving France objectives. Marine renewable energies are also part of the programme.

Offshore wind power is a renewable energy that should enable France to achieve its objectives in terms of ecological transition, by producing 40% of electricity from renewable sources by 2030. This energy also contributes to the diversification of the energy mix and makes it more resilient. The MPE for the period 2019-2023 sets out, notably, the capacities and locations of offshore wind projects to be developed. The objective is to reach an installed capacity of 2.4 GW in 2023 and around 5 GW in 2028.

## General objectives

The EPP contains 6 sections relating to:

- Security of supply. This section defines the criteria for the security of the energy system, in particular the criterion of failure of the electricity system;
- The improvement of energy efficiency and the reduction of primary energy consumption, in particular fossil fuels;
- The development of the use of renewable and recovered energy. The MPE defines the development objectives of renewable energies for the different sectors. The Minister in charge of energy may issue calls for tenders to achieve them;
- The balanced development of networks, storage, energy transformation and energy demand management to encourage local energy production, the development of smart networks and self-production;
- Preserving the purchasing power of consumers and the competitiveness of energy prices, for companies exposed to international competition. This section presents policies to reduce the cost of energy;
- Assessing the need for professional skills in the energy field and adapting training to these needs.

### 2. The goals in line with MedBAN's challenges

	Marine renewables energies			
Challenges	Project Development	Production optimisation to reduce the LCOE	Maintenance operations	Synergies with other sectors
<b>Multiannual Energy Programme</b>	●	●		●

Most of the sector's challenges are covered by the ambitious objectives of this strategy.

## Harbours - National port strategy

### 1. Strategy presentation

The national port strategy pursues a clear objective of regaining market share and economic development of the ports by 2025-2050. The ambition is to increase to 80% by 2050 the share of containerised freight to or coming from France that is handled in French ports (against 60% at present) and to win back European flows for which French ports represent a relevant point of passage. This reconquest of traffic will mainly involve the three main maritime entry points, i.e., the major ports of

HAROPA (Le Havre, Rouen, Paris), Marseille and Dunkerque, which account more than 60% of the total traffic of French ports.

This strategy is in line with the timeframe defined by the 2050 objectives of the ecological transition (Paris Agreements, National Low Carbon Strategy) and by the long-term requirements of economic conversion. Within the framework of this 2050 trajectory, it sets a clear intermediate course and a roadmap to 2030 for all the commercial ports that make up the French port system.

To keep up with the changes that the sector is undergoing today, it would gain by better coordination and by strengthening its overall coherence through a long-term vision in terms of development and investments regarding the demands of the ports' customers, while respecting the rules of competition. This strategy has been drawn up to be evolutionary, i.e., to adapt to the sometimes rapid economic, digital, and geopolitical changes to come. It provides a 10-year vision of the course to be followed by the port authorities, port stakeholders and the various government departments involved in port performance.

### General objectives

To meet these challenges, the strategy includes four ambitions common to the entire French port system, broken down into 16 strategic objectives that will be implemented through operational actions:

- Ports, essential links in the performance of logistics chains;
- Ports, tools for the economic development of the territories;
- Ports, accelerators of the ecological transition;
- Ports as drivers of innovation and digital transition.

## 2. The goals in line with MedBAN's challenges

The plan is part of the sectoral strategies, so it relates only to harbours.

		Harbours		
Challenges		Green ports	Smart ports	Resilience ports
<b>National Strategy</b>	<b>Port</b>	•	•	•

All MedBAN challenges of the sector match to the key actions.

- **"Green ports"**

The strategic objectives of the ambition for the ecological transition match this MedBAN challenge. One of them aims at ensuring a multi-energy production and supply to offer alternative fuels for ships in the framework of a national scheme. To support the ecological transition of maritime and river transport, some ports already provide ships and boats with several solutions such as liquefied natural gas and electrical connections at the quayside during their calls. Anticipating the development of emerging solutions should enable French ports to remain competitive with their peers and to improve the acceptability and integration of maritime transport activities in the heart of the city thanks to a reduction in nuisance. Moreover, port areas host an already dense industrial ecosystem and are therefore privileged sites for developing solutions for the circular economy or the production of new energy sources such as hydrogen.

Another objective is to enhance the value of green logistics chains transiting through French ports. The French port ecosystem could play a decisive role in the decarbonisation of transport chains by 2050. In addition, many players, such as shippers, are seeking to have the greenest possible logistics chains to meet the demand of distributors and end consumers. The strategy aims to attract innovative companies in the field of ecological transition to the industrial port area to develop the circular economy and the industrial ecology approach within the port centres. Overall, the ambition of the ecological transition is to ensure better protection of biodiversity.

These different objectives aim on the one hand at a green transition and the conservation of biodiversity and on the other hand at the diversification of the supply of clean energy.

- **"Smart ports"**

The ambition of a digital transition meets this challenge. It seeks to support the emergence of digital solutions through a digital logistics platform. The convergence of systems can make it possible to support the ambition of merging the computer systems for processing goods flows (CCS, cargo community systems) so that France is equipped with a single CCS in the face of competition from foreign ports, in line with the requirements of the economic players who are the ports' clients. A first step in this ambition is to make the two existing CCS fully interoperable as soon as possible.

The use of digital technology enables the facilitation of port passage by deploying a maritime one-stop shop for operators. One of the expected actions is the deployment of a new national maritime one-stop shop in line with the principles of "Tell us once" and "Zero paper", which will strengthen the competitiveness of French ports.

- **"Resilient ports"**

The strategy aims to ensure the digital resilience of ports. Faced with the risks of cyber-attacks, it is becoming essential to share the experiments and initiatives of the major seaports and to rely on a structured initiative to federate the efforts of the port centres in this field and to disseminate useful recommendations to all the ports in their diversity, so that they can, at their own level, adapt their action and develop and pool solutions in the field of cyber-security.

Finally, the strategic objective to strengthen the ports' climate change mitigation and adaptation measures corresponds to MedBAN's image of a resilient port. A port ecological transition plan will be elaborated at the level of each port to allow a systematic reflection on adaptation to climate change and to define a carbon neutrality trajectory, adapted to local potentialities and specificities.

## B. Greece

### 1) General strategies

#### A) Strategies' presentation

### EU Cohesion Policy - Greek Partnership Agreement

In July 2021, the European Commission adopted the first Partnership Agreement for the 2021-2027 programming period for Greece, the first EU country to submit its strategic reference document for deploying more than €21 billion of investments for its economic, social, and territorial cohesion<sup>1</sup>.

The Partnership Agreement lays out the strategy and investment priorities to be addressed via the Cohesion policy funds and the European Maritime Fisheries and Aquaculture Fund (EMFAF). Greece will invest in a holistic approach in the *fisheries, aquaculture and maritime sectors* to enable the implementation of the Common Fisheries Policy, the European Green Deal, the EU Strategic Guidelines for sustainable and competitive EU aquaculture, and the EU Communication on Sustainable Blue Economy.

Greece is strongly committed to the coordinated use of the Cohesion policy funds with the Recovery and Resilience Facility.

### National Recovery and Resilience Plan “Greece 2.0”

The **National Recovery and Resilience Plan<sup>2</sup> Greece 2.0** was adopted on 13 July 2021 by the Economic and Financial Affairs Council of the European Union (Ecofin). Greece 2.0 includes 106 investments and 68 reforms, structured around four pillars: *Green Transition, Digital Transformation, Employment-Skills-Social Cohesion, Private Investments and Transformation of the Economy*.

Greece 2.0 raises €31.16 billion of which €30.5 billion European funds (17.8 billion euros in grants and 12.7 billion euros in loans) and is expected to mobilize €60 billion of total investment in the country by the end of 2026, when all projects should have been implemented.

The **National Recovery and Resilience Plan “Greece 2.0”** funded by the European Union NextGenerationEU fund provides all means aiming at the a) promotion of private investments, b) export orientation of the Greek economy, c) digital transformation of public administration.

The “blue economy” of coastal and maritime activities, MICE and medical tourism, high-tech agriculture, food processing and manufacturing, research, and development, but also education, health, and culture, are all seen as areas where Greece can build on its strengths. More opportunities await in other sectors, too. Encouraging extroversions and innovation are key to the success of Greece 2.0.

### Greece - Agenda 2030

Despite the adversities, Greece remains fully committed to the Agenda 2030. The 17 Goals are embedded in all its major binding political plans. Compact strategies are launched, policies are elaborated, and institutional reforms are designed to accelerate the full implementation of the SDGs

<sup>1</sup> “EU Cohesion policy: [Commission adopts €21 billion Greek Partnership Agreement for 2021-2027](#)” July 29, 2021.

<sup>2</sup> Hellenic Republic, “National Recovery and Resilience Plan - [GREECE 2.0](#)” July 2021.

and to build back better from the COVID-19 pandemic. Greece is also reported as one of only two countries in the European Union (2021) that managed to not move away from any of the 17 Goals and remained in the cluster as one of five (2022) that did not move away, while improving within a year, its performance in SDGs 2, 7, 10 and 12 to above the EU average.<sup>3,4</sup>

“**National Strategic Plan for Extroversion (NSPE) 2022**”<sup>5</sup> forges a comprehensive economic diplomacy by the Ministry of Foreign Affairs to implement the government's vision to defend and strengthen Greek economic and commercial interests internationally, attracting foreign investment in targeted sectors of the Greek economy, as well as being actively involved in multilateral international economic organizations and exhibitions of renowned prestige.

The NSPE 2022 plan includes a total of 670 actions in forty-seven (47) target countries which aim to: Reinforcing of bilateral economic relations; Attract Investments, with the goal to increase Foreign Direct Investment (FDI) to 4% of GDP by 2023 from 1.8% in 2019; and boost exports, with the goal to increase exports to 48% of GDP by 2023 from 37% in 2018.

## Hellenic Republic Asset Development Fund (HRADF)

HRADF's philosophy is to act as a strategic partner for the Greek State to attract investments, enhance the Greek economy's growth potential, strengthen its international credibility, and produce national wealth.

## RIS3 STRATEGIES

The 2014-2020 Programming Period consisted of one national and 13 regional RIS3 strategies, one for each of the country's 13 regions. The national RIS3 Strategy constituted the main guidance for defining and promoting Research and Innovation Policy. It highlighted areas where Greece had already achieved, or could achieve, a competitive advantage. Priorities emerged as a result of the entrepreneurial discovery process aimed at identifying new business opportunities to put into use newly produced knowledge and integrate it into value chains. The RIS3 Priority Areas identified were: Agro-food sector; Bioscience and Healthcare / Pharmaceuticals; Information and Communication Technology (ICT); Energy; Environment and Sustainable Development – Climate Change; Transport and Logistics; Materials – Manufacturing; Cultural and Creative industries – Tourism.

## Regional Growth Strategies

Several strategies at the regional level are listed under the Presidency of the Government of the Hellenic Republic<sup>6</sup>. Many projects are planned for development which will be financed by a combination of instruments from regional, national and European funding mechanisms. Example of such plans are: Thessaloniki 2030 (€9.3 billion for more than 30 projects, among which is the upgrading of the Port of Thessaloniki according to the Thessaloniki Port Authority's master-plan), Crete 2030 (€7.7 billion for

<sup>3</sup> Eurostat, Sustainable development in the European Union: Monitoring report on progress towards the SDGs in an EU context, 2022 edition, p. 326.

<sup>4</sup> Presidency of the Hellenic Government, “Voluntary National Review on the Implementation of the 2030 Agenda for Sustainable Development” VNR Greece 2022.

<sup>5</sup> Ministry of Foreign Affairs, Hellenic Republic, “[National Strategic Plan for Extroversion, 2022](#)” May 2022.

<sup>6</sup> Hellenic Republic, “[Strategic Plans for Regional Growth, 2023-2030](#)”, 2023.

more than 480 projects), Patra 2030 (€3.7 billion for more than 80 projects), Peloponnese 2030 (€5.2 billion for more than 200 projects), etc.

## Municipal Strategic Plans

At the local level the Municipality of Piraeus was the first municipality in Greece which in 2017 developed a Blue Growth Strategy 2018-2024 based on national and supranational guidelines. The Piraeus Blue-Growth Strategy covers economic, social, and environmental issues. A key objective of this is a far-reaching urban renewal program to redefine the role of the port city as a tourist destination.

## B) The goals in line with MedBAN's challenges

### Sustainable aquaculture

Target #3 of the GFCM Strategy 2030 ensures the sustainable development of aquaculture and its contribution to sustainable food systems in line with the GFCM Strategy for the sustainable development of Mediterranean and Black Sea aquaculture, working towards the resilience of the sector against global challenges such as climate change and pollution.

Moreover, the "EU Cohesion Partnership Agreement" specifies how the Greek fisheries, aquaculture, and blue economy sectors, as well as coastal communities, will be supported. Greece will invest in a holistic approach in the *fisheries, aquaculture and maritime sectors* to enable the implementation of the Common Fisheries Policy, the European Green Deal, the EU Strategic Guidelines for sustainable and competitive EU aquaculture, and the EU Communication on Sustainable Blue Economy.

Additionally, reform 16894 of the Greek NRRP part of Pillar-1 "Green Transition" aims at the establishment of new special spatial framework for RES, industry, tourism, and aquaculture to promote climate mitigation and adaptation, protection of biodiversity and development of the national economy.

MedBAN's sustainable aquaculture challenges to "**Change farming practices and improve cultivation techniques**", "**Improve aquaculture farms monitoring**" and "**Raise awareness to improve social acceptability**" contribute to the GFCM 2030 Strategy's Target #3, and the implementation of reform 16894 of the NRRP, Greece 2.0.

### Sustainable fisheries

The EU Cohesion Policy – Greek Partnership Agreement enables the implementation of the Common Fisheries Policy, the European Green Deal, and is in line with the FAO GFCM 2030 Strategy for sustainable fisheries and aquaculture in the Mediterranean and the Black Sea which places important emphasis on ensuring resilient fisheries-based livelihoods and, in this context, calls for the full and efficient implementation of the Regional Plan of Action for Small-Scale Fisheries (SSF) in the Mediterranean and the Black Sea (RPOA-SSF).

The RPOA-SSF represents a political commitment to implement concrete actions over ten years (until 2028) in order to strengthen and support sustainable SSF, advancing the commitments set out through the Malta MedFish4Ever Ministerial Declaration and the Sofia Declaration.

The GFCM 2030 Strategy aims to preserve the heritage of fisheries and aquaculture as pillars for the livelihoods of Mediterranean and Black Sea coastal communities. The GFCM 2030 Strategy is

articulated around five targets: Each target is composed of expected outputs and strategic actions: 1) Fisheries & Ecosystems: Healthy Seas and Productive Fisheries; 2) Compliance and Enforcement: A level playing field to eradicate Illegal, Unreported and Unregulated (IUU) fishing; 3) Aquaculture: A sustainable and resilient sector growing to its full potential; 4) Livelihoods: Decent employment and engaged fishers towards profitable fisheries; 5) Capacity development: Technical cooperation, knowledge sharing and efficient partnerships in a subregional perspective.

A specific action of Target objective #4 calls for the enhancement of fisheries value chains, particularly for small-scale fisheries, to increase profitability and reduce food waste, in the context of sustainable and inclusive ocean economies.

MedBAN's sustainable fisheries challenges of the **"Sustainable Value Chain"**, **"Fight Illegal Fishing and Control Access to Fishing Areas"** and **"Reducing Vessel Pollution"** contribute to the GFCM 2030 Strategy's Target objectives #1 #2 and #4.

## Sustainable tourism

For Greece, tourism is a strategically important activity and one of the main pillars of growth, income generation and employment, while the brand "Greece" is ranked among the top tourist brands in the world. *Sustainability, new technologies* and *inclusive services* are key priorities for tourism policymakers and stakeholders in the post Covid-19 era, according to a report published by Alpha Bank<sup>7</sup>.

The government's goal to make Greece a model of sustainable tourism, to improve its image and to further upgrade the Greece brand was highlighted by the Secretary of State for International Economic Relations and External Affairs and president of Enterprise Greece, Ioannis Smyrlis, at the conference "Hellenic tourism: a national affair. Possibilities and perspectives", organized in Athens, in December 2022. Mr. Smyrlis also emphasized the importance for sustainable tourism development of the upgrading and suitability of infrastructure, such as airports, ports and marinas, but also, public utility projects for adequate water supply, for waste management, for the reformation and protection of coastlines and for improvements to archaeological sites and cultural attractions.

The Greece 2.0 NRRP tool has a significant budget to finance key investments in culture, tourism, and the agri-food sector as growth drivers. HRADF, the Asset Development Fund of the Greek State, plays a key role in the upgrading of infrastructure for the development of sustainable tourism, with the strategy of privatization and joint exploitation of key infrastructures in the form of PPPs. Furthermore, a framework is being developed for the synergistic sustainable development of all sectors of the blue economy through the reform #16894 and component 1.4, "Sustainable use of resources, climate resilience and environmental protection" of Greece 2.0.

MedBAN's sustainable tourism challenges to **"Develop new sustainable offer"**, **"Restore coastal environment to improve attractivity"**, and **"Support the sector transformation regarding climate change impact"** contribute to the component 1.4 and reform #16894 of Greece 2.0.

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<sup>7</sup> Alpha Bank, Insights, "[Greek Tourism Industry Reloaded](#): Post-pandemic Rebound and Travel Megatrends", May 2022

## Marine renewable energies

The energy sector in Greece has a higher contribution to *gross value added (GVA)* and employment than in most EU countries, and is poised to grow significantly in the coming years, driven by a number of significant factors [Enterprise Greece [Energy Sector](#), Dec. 2022]. Key among these is the required optimization of the energy mix, which consists of the reduction of fossil-fuel generated electricity and increased contribution from RES (at the level of 35% electricity production from renewable energy sources according to the [revised EU policy](#)); and major infrastructure development initiatives such as the interconnection of the Greek islands with the main electricity grid.

In July 2022, Greece passed first offshore wind energy law<sup>8</sup> on the development of offshore wind parks and further simplification of renewable energy licensing, including new environmental measures. With law 4964/2022, the Greek government aims to facilitate the installation of at least 2 GW in offshore wind farms by 2030, as part of the National Energy and Climate Plan (NECP)<sup>9</sup>. A key objective of the NECP is to promote renewable energy sources (RES), storage systems and fuel production from RES.

The NECP is partially funded by component 1.1 of the NRRP, 'Power Up', which is part of the pillar "Green Transition" of Greece 2.0. The main objective of 'Power up' is to promote the green transition aiming to increase the share of renewable energy sources (RES) in gross final energy consumption, improve energy efficiency in houses and businesses and reduce greenhouse gas (GHG) emissions.

Issues pertaining to "**Synergies with other sectors**" are dealt with in the context of reform #16894 of the Greek NRRP part of Pillar-1 "Green Transition" which aims at the establishment of new special spatial framework for RES, industry, tourism, and aquaculture to promote climate mitigation and adaptation, protection of biodiversity and development of the national economy.

MedBAN's challenges with respect to Marine Renewables Energies related to "**Project Development**", "**Production optimization to reduce LCOE**", "**Maintenance operations**", and "**Synergies with other sectors**" contribute to the implementation of the National Energy and Climate Plan (NECP), which is aligned and partially funded by the [Greece 2.0](#) NRRP plan, the Greek Partnership Agreement of the EU Cohesion Policy, and the strategic objectives of the HARDF.

## Harbours

The port industry, which is closely tied to the logistics sector and to the wider field of intermodal transport, is of vital importance to the Greek economy.

Five out of the 25 Greek TEN-T ports (i.e., the ports of Heraklion, Igoumenitsa, Patra, Piraeus, and Thessaloniki) belong to the "Core TEN-T Corridor", forming part of the Greek section of the "Orient/East Med Corridor".

In 2019, the Government of Greece embarked on a privatization campaign of its second-tier ports. This followed the initial privatizations of the two largest ports of Piraeus (by Chinese firm COSCO) and Thessaloniki (by South Europe Gateway Thessaloniki). The Greek Privatization Program includes the following ports, most of which are still in progress: Alexandroupolis; Heraklion; Igoumenitsa; Kavala; and the port of Volos.

<sup>8</sup> Harry Aposporis, Balkan Energy News. [Greece passes first offshore wind energy law](#). July 29, 2022.

<sup>9</sup> Hellenic Republic, Ministry of the Environment & Energy, "[National Energy and Climate Plan](#)", Dec. 2019.

The EU Green Deal calls for a rapid energy and green transition, which present enormous challenges and opportunities for Europe's ports. Several European and national funds are available to finance the green transition and Digital Transformation of Maritime Transport & Logistics (e.g., EU Green Deal, the European recovery instrument NextGenerationEU (NGEU), NSRF Recovery Fund, National Strategy for Sustainable and Fair Growth 2030).

Greece places particular emphasis on achieving sustainable development and strongly supports the long-term strategic vision by 2050 of an EU economy that does not burden the climate. The Greek Privatization Program is seen as a lever for enabling ports' sustainability transition<sup>10</sup>. Sustainable development is also an integral part of the mission and mandate of the Hellenic Republic Development Asset Fund (HRADF).

MedBAN's Harbour challenges related to “**Smart Ports**”, “**Green Ports**”, and “**Resilient Ports**” contribute to the implementation of the **Greek National Strategy for Sustainable and Fair Growth (2030)**, which is aligned with and partially funded by the **Greece 2.0 NRRP plan**.

## 2) Sectoral strategies

### Sustainable aquaculture

#### 1. Strategies' presentation

The aquaculture sector in Greece is highly export oriented as approximately 80% of the production is sold in over 40 countries. In 2019, 98% of Greek production occurred in the sea and brackish waters (almost entirely in marine waters) and the rest in freshwater<sup>11</sup>. Production in 2020 amounted to 130,000 Tn. €551,758 thousand (source: EUMOFA, 2022).

The main strategies for the sector at the national and regional level are as follows.

#### **MNSPA – Multiannual National Strategic Plan for the Development of Aquaculture**

The MNSP to develop sustainable aquaculture for the programming period 2021-2030 has been published by the Directorate General for Fisheries of the Ministry of Rural Development and Food<sup>12,13</sup>.

The MNSPA is in full harmonization with the European Commission's strategic guidelines [COM\(2021\)0236](#) for more sustainable and competitive EU aquaculture.

The country's strategic objective is to reach a sustainable (environmentally and economically) and socially responsible development of aquaculture. Growth target:

- Increasing Greek aquaculture production at a rate of 3% until 2025 and 5% until 2030 (National Strategic Objective).
- Strengthening competitiveness and research. There is therefore a need to promote knowledge, innovation, and technology transfer in the sector and to support species diversification, both in

<sup>10</sup> R. Lambiris, M. Christantoni “[The Greek Privatization Program as a lever for navigating ports' sustainability transition](#)”, Hellenic Republic Asset Development Fund (HRADF), 2019.

<sup>11</sup> EU Aquaculture Assistance Mechanism: Country information [Greece](#). Accessed on April 21, 2023.

<sup>12</sup> Hellenic Republic, Ministry of Rural Development and Food, “[MNSPA](#) - Multiannual National Strategic Plan for the Development of the Aquaculture, 2021-2030” (in Greek).

<sup>13</sup> “Multiannual [National Strategic Plan for the Development of the Aquaculture](#), 2021-2030”, Summary (in English).

terms of climate change adaptation and increased diversification and competitiveness of Mediterranean aquaculture.

- Increasing organic production.

### General objectives

Some of the opportunities identified by the MNSPA are:

- Promoting adequate sustainable aquaculture production in wetlands/lagoons could also serve to preserve these ecosystems, which also mitigate coastal erosion due to climate change.
- The development of floating units on the high seas or other types of production with high added value (e.g., algae for pharmaceuticals).
- Measures to increase social acceptance and improve the image of aquaculture could also be encouraged with a view to enhancing the competitiveness of the sector.
- Aquaculture can help develop blue biotechnology and offer many new products, such as pharmaceutical or biochemical enzymes.
- Integrated Multitrophic Aquaculture (IMTA) is an innovative approach in which by-products and waste from the main farmed organisms dispersed in the immediate environment are a nutrient medium for parallel or complementary cultivation of additional species.

A key challenge of the MNSPA is *the* Implementation of the Special Spatial Framework (SSF) Planning in accordance with the Reform #16894 of the NRRP, Greece 2.0, titled “Establishment of new special spatial planning for RES, industry, tourism and aquaculture”. The reform involves the establishment of new special spatial framework for RES, industry, tourism, and aquaculture to promote climate mitigation and adaptation.

Funding of measures and actions for aquaculture in the period 2021-2027 will be achieved mainly through the Greek EMFAF Programme 2021–2027, but also through InvestEU. The Recovery and Resilience Fund will also support financial lines existing in the Operational Program 2014-2020 of measures and actions, but also independent new actions. In addition, EU and international programmes will be used and transnational partnerships between public and private entities will be supported.

### EU Cohesion Policy - Greek Partnership Agreement

In July 2021, the European Commission adopted the Partnership Agreement for the 2021-2027 programming period for Greece, with plans for deploying more than €21 billion of investments for its economic, social, and territorial cohesion<sup>14</sup>.

### General objectives

The Partnership Agreement lays out the strategy and investment priorities to be addressed via the Cohesion policy funds and the European Maritime Fisheries and Aquaculture Fund (EMFAF). These funds will support key EU priorities such as the green and digital transition and will contribute to develop a competitive, innovative and export-oriented growth model for the country.

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<sup>14</sup> “EU Cohesion policy: [Commission adopts €21 billion Greek Partnership Agreement for 2021-2027](#)”, July 2021.

In total, the Partnership Agreement comprises 22 programmes: 13 regional and 9 national. The thirteen regional programs correspond to each administrative region of Greece and will be financed by a combination of funds from the ERDF (European Regional and Development) and the European Social Fund Plus. Greece strongly commits to coordinated use of cohesion policy funds with the Recovery and Resilience Facility, NRRP Greece 2.0.

### **RIS3 Regional Strategy – Western Greece region**

A report by DG Regio on Ecosystems and Functioning Entrepreneurial Discovery Process (EDP) for S3 2021-2027 in Greece<sup>15</sup> aiming to derive policy recommendations on how to achieve “functioning EDP” for smart specialisation strategies 2021-2027 has shown the region of Western Greece to be one of the NUTS Level 2 regions in Greece with strong aquaculture. Western Greece presents the most intense aquaculture activity (NACE industry code 03.2) among the five regions of Greece where aquaculture ranks among the top 10 industrial group activities in the region.

#### **General objectives**

The further development of sustainable aquaculture in the region is a key objective of the RIS3 strategy of Western Greece for the period 2021-2027. Some specific research objectives of this strategy are:

- Development and evaluation of new systems and technologies for the diagnosis and control of pests and diseases in all sectors of the agri-food chain.
- Improving knowledge on the metabolism and nutritional requirements of farmed fish. Development of indicators and methods of early detection of ineffective nutrition.
- New methods for the treatment of viral and bacterial infections. New farming technologies for precision aquaculture.

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<sup>15</sup> N. Komninos, et. al., (2020) “[Ecosystems and Functioning EDP for S3 2021-2027](#) in GREECE”, page 17.

## 2. The goals in line with MedBAN's challenges

	Sustainable Aquaculture		
Challenges	Change farming practices and improve cultivation techniques	Raise awareness and improve social acceptability	Improve aquaculture farms monitoring
<b>MNSPA: Multiannual National Strategic Plan on Aquaculture, 2021-2030</b>	●	●	●
<b>EU Cohesion Policy - Greek Partnership Agreement</b>	●	●	●
<b>RIS3: Aquaculture in Western Greece region (EL63)</b>	●		●

\* MNSPA: Multiannual National Strategic Plan on Aquaculture, 2021-2030.

With aquaculture being one of the export champions for the Greek economy, the sustainable development of the sector is a key strategic objective at national, regional, and local level.

The Multiannual National Strategic Plan on Aquaculture in full harmonization with the Greek Partnership Agreement aim to enable the implementation of the Common Fisheries Policy, the European Green Deal, the EU Strategic Guidelines for sustainable and competitive EU aquaculture, and the EU Communication on Sustainable Blue Economy.

Specifically, the Partnership Agreement specifies how the Greek fisheries, aquaculture, and blue economy sectors, as well as coastal communities, will be supported. The main aim being to promote resilience and the green and digital transitions, 35% of the European Maritime Fisheries and Aquaculture Fund resources will be allocated to mainstreaming climate objectives.

All three challenges of the MedBAN project for Sustainable Aquaculture are seen to be in full alignment and contribute to the realization of the goals of the MNSPA and the Hellenic Partnership Agreement.

Regarding the RIS3 strategy of the region of Western Greece, the focus of the strategic objectives is on improving productivity of existing plants, while expanding activity and product innovation as well as establishing new plants, in accordance with the Special Spatial Framework of reform 16894 of the Greek NRRP. "**Raising awareness and improving social acceptability**" is not necessary in this region given the current level of aquaculture activity.

### Sustainable fisheries

#### 1. Strategies' presentation

Greece has a long tradition and history in fishing and shipping. Despite its limited contribution (below 3.1%) to GDP, Greek fisheries are a primary sector of high socio-economic importance, especially in coastal areas and in areas traditionally dependent on fisheries, such as the islands.

Regarding the Greek fishing fleet, according to the Directorate General for Fisheries of the Ministry of Rural Development and Food, in 2017 it consisted of 14,985 vessels with a total capacity of 71,085 gigatonnes (GT) and a total power of 426,683 kW. It is worth noting that the contribution of small vessels of 0–11m length to the Greek fleet is 94.3%, followed by vessels of 12–23 m long, amounting to 4.6%, and vessels of 24–39 m long, amounting to just 1.1%.

The marine fisheries face the challenge to balance the sustainability of stocks and the income of fishermen. Given that 94% of the Greek fishing fleet consists of small-scale coastal fishing vessels, with limited capacity and age, the industry is characterized by low levels of competitiveness and financial performance. In terms of human resources, most fisheries workers are elderly and under-trained.

The main strategies for the sector at the national and regional level are as follows.

### **The “European Maritime, Fisheries and Aquaculture Fund – Programme for Greece 2021-2027”**

Under management by the General Secretariat of European Funds and Infrastructures of the Ministry of Rural Development and Food, it will contribute to the EU policy priorities outlined in the European Green Deal, Farm to Fork and Biodiversity strategies.

With a total public contribution of €519.6 million, Greece will receive €364 million from the European Maritime, Fisheries and Aquaculture Fund for the period 2021-2027 to implement the EU common fisheries policy (CFP) and EU policy priorities outlined in the European Green Deal. The programme will also be funded by the NRRP. 207.9 million €, 57% of the programme’s allocation, will be dedicated to sustainable fisheries.

#### **General objectives**

The Greek EMFAF programme:

- supports the transition to resilient, competitive, and environmentally friendly fisheries and aquaculture, integrated into the framework of circular and energy efficient economy with emphasis on knowledge, innovation, and the utilization of technology.
- contributes to local development by enabling a sustainable blue economy in coastal, insular, and inland areas and fostering the development of fishing and aquaculture communities.

In support of the Greek EMFAF programme, the National Fisheries Data Collection Programme (EPSAD) has been established. The implementation of EPSAD is undertaken under the Regulation 199/2008 of the EU, which dictates that Member States are obliged to submit annually to the General Department of Marine Affairs and Fisheries (DG-MARE) EU, data on the exploitation of fisheries resources and the state of fish stocks and the marine ecosystem in general. In the context of EPSAD, biological and environmental data on fisheries are collected and analyzed from the areas of activity of the Greek fleet, in accordance with a standard protocol.

The EPSAD is funded 50% by the European Union, through the Ministry of Rural Development and Food, and implemented jointly by the Institute of Marine Biological Resources and Inland Waters of HCMR and the Fisheries Research Institute of the Greek Agricultural Organization – Dimitra.

## Greek Agenda 2030

The national strategic plan for the sustainable development of the fishing sector is aligned with the recently adopted EC proposal for fishing opportunities for 2023 in the Mediterranean and the Black Seas<sup>16</sup>. The proposal reflects the Commission's ambition for achieving sustainable fisheries in these two sea basins, in line with the 2030 Strategy of the General Fisheries Commission for the Mediterranean (GFCM).

The FAO GFCM 2030 Strategy for sustainable fisheries and aquaculture in the Mediterranean and the Black Sea places important emphasis on ensuring resilient fisheries-based livelihoods and calls for the full and efficient implementation of the Regional Plan of Action for Small-Scale Fisheries in the Mediterranean and the Black Sea (RPOA-SSF).

## General objectives

The RPOA-SSF puts forth actions to be taken in line with nine key topics:

- Scientific research;
- Small-scale fisheries data;
- Small-scale fisheries management measures;
- Small-Scale fisheries value chain;
- Participation of small-scale fisheries in decision-making processes;
- Capacity-building;
- Decent work;
- Role of women;
- Climate and environment.

## RIS3 Regional Strategy – North Aegean region

A report by DG Regio on “Ecosystems and Functioning Entrepreneurial Discovery Process (EDP) for S3 2021-2027 in Greece”<sup>17</sup> aiming to derive policy recommendations on how to achieve “functioning EDP” for smart specialisation strategies 2021-2027 has shown increased fishing activity in the region of North Aegean. North Aegean is ranked second among the seven Greek regions where fishing (NACE industry code 03.1) is within the top-10 industrial group activities in the region.

## General objectives

This NACE group 03.1 includes:

- *03.11 Marine fishing*: fishing on a commercial basis in ocean and coastal waters, taking of marine crustaceans and molluscs, whale catching, taking of marine aquatic animals: turtles, sea squirts, tunicates, sea urchins etc. It also includes activities of vessels engaged both in marine fishing and in processing and preserving of fish, gathering of other marine organisms and materials: natural pearls, sponges, coral, and algae.

<sup>16</sup> EC, “Mediterranean and Black Seas: Commission proposes fishing opportunities for 2023”, Oct. 14, 2022

<sup>17</sup> N. Komninos, et. al., (2020) “Ecosystems and Functioning EDP for S3 2021-2027 in GREECE”, page 16.

- *03.12 Freshwater fishing:* fishing on a commercial basis in inland waters, taking of freshwater crustaceans and molluscs, taking of freshwater aquatic animals, and gathering of freshwater materials.

Overfishing in combination with illegal fishing and trade poses a threat to certain species in the region, especially sharks and skates, as at least 50-54% of their population is at risk. A recent study demonstrates that mislabelling of such species (named elasmobranch) in North Aegean reach 60% of the specimens found in Greek fish markets.

The modernization of fishing infrastructures (vessels, landing sites, ports, and shelters) together with a strategy for protecting and restoring biodiversity of aquatic ecosystems, are top priorities for the sector's development in North Aegean.

## 2. The goals in line with MedBAN's challenges

	Sustainable Fisheries		
Challenges	Decrease ship pollutions	Fight illegal fishing and control access to fishing areas	Sustainable value chain
<b>Greek Operational Programme "European Maritime, Fisheries and Aquaculture Fund 2021 2027"</b>	●	●	●
<b>Greek Agenda 2030</b>	●	●	●
<b>RIS3: Aquaculture in North Aegean region (EL41)</b>		●	●

MedBAN's challenges are fully aligned with the Greek Agenda 2030, and therefore the GFCM 2030 Strategy, and specifically with targets #1, #2, #4 and #5 of the five target strategy:

1. Fisheries & Ecosystems: Healthy Seas and Productive Fisheries;
2. Compliance and Enforcement: A level playing field to eradicate Illegal, Unreported and Unregulated (IUU) fishing;
3. Aquaculture: A sustainable and resilient sector growing to its full potential;
4. Livelihoods: Decent employment and engaged fishers towards profitable fisheries;
5. Capacity development: Technical cooperation, knowledge sharing and efficient partnerships in a subregional perspective.

Moreover, the MedBAN challenges contribute to the implementation of the Greek EMFAF programme 2021-2027 which aims to support the transition to the transition to resilient, competitive, and environmentally friendly fisheries, and contributes to the development of a sustainable blue economy in coastal, insular, and inland areas.

Regarding the showcased RIS3 strategy of North Aegean (EL41), we notice the strategic priorities of battling the overfishing in combination with illegal fishing, and the protecting and restoring biodiversity of aquatic ecosystems. The MedBAN challenges of “**Fight illegal fishing and control access to fishing areas**”, and “**Build a Sustainable value chain**” contribute to the realization of the objectives of this RIS3 strategy.

## Sustainable tourism

### 1. Strategies' presentation

Tourism is an export champion for Greece, it represents 30.9% of GDP (2018, INSETE) & 25.9% of employment (2018, WTTC). Greece ranked 4<sup>th</sup> in the EU-27 in 2019 with 120 million nights spent by international guests at tourist accommodation establishments [Eurostat, [Tourism Statistics](#), Mar. 2021].

The implementation of the national tourism policy is supervised by the Ministry of Tourism and the Greek National Tourism Organisation ([GNTO](#)). The two organisations share the responsibilities for planning, implementation, and promotion of Greek tourism. The GNTO is the central and official governmental DMO dealing with Destination Marketing and Management in Greece.

### Annual Tourism Strategic Action Plan 2023

Increasing demand for alternative and authentic tourism products and experiences which are not provided in the traditional Sun & Sea mass tourism product, create an opportunity for Greece to differentiate its offering and improve its global standing as a unique destination. European and national funds (e.g., Green Deal, Transition Pathway for Tourism, NSRF Recovery Fund) are available to finance the Green transition and Digital Transformation of tourism.

#### General objectives

The GNTO, taking into account the National Strategic Plan for Tourism, the [Strategic Marketing Plan 2023-2024](#) of the Ministry of Tourism, the trends of the international tourism market, the current conditions of the global and Greek economy, but also the forecasts and data on how travel behavior has now been shaped in the post-pandemic era, it determines the general directions and the [communication strategy for the years 2023-2024](#).

### The National Recovery & Resilience Plan (NRRP) – Greece 2.0

The [Greece 2.0](#) NRRP tool has a significant [budget](#) to finance key investments in culture and tourism, as growth drivers<sup>18</sup>. Additionally, [HRADF](#), the Asset Development Fund of the Greek State, plays a key role in the development of sustainable tourism, with the strategy of privatization and joint exploitation of key infrastructures in the form of PPPs. Several flagship projects, such as The Ellinikon project on the Athenian Riviera currently under construction, are contributing to the upgrade of Greek Tourism.

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<sup>18</sup> M. Paravantes, GTP, “[Greece 2.0 Recovery Tool to Fund Key Tourism Projects](#)”, posted on 07 Jan 2022

## General objectives

The tourism sector stands to gain from the NRRP funding as several key projects have received the go-ahead. Among these are:

- the upgrade of tourist port infrastructure (161.05 million euros). A recent study found that Greece stands to gain 2.9 billion euros just from the creation of 5,164 new yacht berths<sup>19</sup>. The RRF financed marina and port projects are expected to boost yachting, recreational and professional boating activities.
- the further development of mountain and winter tourism products and facilities (56.57 million euros)
- the introduction of educational and upskilling programs for 18,000 tourism industry employees (43.97 million euros)
- the development of health and wellness tourism and the utilization of the country's thermal springs (28.46 million euros)
- the development of diving and underwater tourism (22.05 million euros).
- improving the management of destinations through the establishment and operation of local or regional DMOs and of observatories for sustainable tourist development (18.45 million euros)
- making beaches accessible to people with mobility problems or disabilities with the construction of some 250 semi-permanent structures (17.21 million euros)
- developing a network that will link the agri-food, gastronomy, and tourism sectors (dubbed Agri-Food, Gastronomy and Tourism Interconnection System – AGTIS), which will serve as the country's management organization / (DMO) for gastronomy and agriculture (17.18 million euros).

*Reform #16894:* a framework is being developed for the synergistic sustainable development of all sectors of the blue economy through the reform #16894 and component 1.4, "Sustainable use of resources, climate resilience and environmental protection" of Greece 2.0. The reform involves the establishment of special spatial framework (SSF) for *RES, industry, tourism, and aquaculture* to promote climate mitigation and adaptation, protection of biodiversity and development of the national economy.

The special spatial framework for tourism (SSFT), is a key component of the spatial policy for expansion of tourism in Greece, in combination with terms of economic development competitiveness, and sustainability.

## RIS3 Strategies

Tourism is the driving force of the national economy, but also a sector of high importance in almost all Greek regions. The RIS3 national strategy for the period 2021-2027 has identified tourism as one of the eight strategic priorities for Greece. In addition, tourism related activities occupy a position of top priority in the strategic development plans of all thirteen regions of Greece.

The analysis of industrial activities and RIS3 strategic priorities by region in the report by DG Regio on "Ecosystems and Functioning Entrepreneurial Discovery Process (EDP) for S3 2021-2027 in Greece"<sup>20</sup>

<sup>19</sup> G. Vaggelas, T. Pallis, DIANEOSIS, "Marinas & Tourist Ports in Greece" (In Greek). Available [online](#) Nov. 2021.

<sup>20</sup> N. Komninos, et. al., (2020) "[Ecosystems and Functioning EDP for S3 2021-2027](#) in GREECE", page 16.

reveals multiple tourism-related activities as the top industrial activity in a region. Examples of industrial categories that hold the top position in a region are NACE #50.1 Maritime and coastal passenger transport in the South Aegean; #79.1 Travel Agency & tour operator activities in Ionian Islands; #55.1 Hotel & similar accommodations in Crete; #90.0 Creative arts & entertainment activities in Attica.

### General objectives

The Attica Region strategic plan has set out tourism development goals<sup>21</sup> aiming at the promotion of Attica as a destination with a wealth of potential and diverse range of functions, targeting a “multi-faceted travel experience 365 days a year”. The priorities of this strategy are the development of forms of tourism of special interest and the creation of the foundations for a model of sustainable development.

For the better management of the Regional Operational Program of Attica, which is co-financed by the EU Cohesion Funds 2021 – 2027, the Development Organization of “New Metropolitan Athens SA” was established. The Development Organization implements a series of important projects, programs, and studies, of developmental character and supralocal importance such as electrically powered transport and energy communities. The pillars of its focus are Tourism & Extroversion, Culture-Sports-Education, Entrepreneurship & Investment, Environment and Quality of Life, Health, Digital Transition/Era, Transportation, Technical Projects (maturation of projects) and Social Care & Support.

### Municipal Strategic Plan

The Municipality of Piraeus was the first municipality in Greece which in 2017 developed a Blue Growth Strategy 2018-2024 based on national and supranational guidelines. The Piraeus Blue-Growth Strategy covers economic, social, and environmental issues. A key objective of this is a far-reaching urban renewal program to redefine the role of the port city as a tourist destination.

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<sup>21</sup> GTP, “[Attica region plan sets out tourism development goals](#)”, posted on 28 Feb 2023.

## 2. The goals in line with MedBAN's challenges

	Sustainable Tourism		
Challenges	Restore coastal environment to improve attractivity	Develop new sustainable offer	Support the sector transformation regarding climate change impact
<b>Annual National Tourism Strategic Action Plan</b>	●	●	●
<b>GREECE 2.0 NRRP</b>	●	●	●
<b>RIS3 Regional Plans</b>	●	●	●
<b>PIRAEUS Blue-Growth 2018-2024</b>		●	

For Greece, tourism is a strategically important activity and one of the main pillars of growth, income generation and employment. *Sustainability, new technologies* and *inclusive services* are key priorities for tourism policymakers and stakeholders in the post Covid-19 era, according to a report published by Alpha Bank<sup>22</sup>.

The government's goal to make Greece a model of sustainable tourism, to improve its image and to further upgrade the Greece brand is implemented through a multitude of national and regional strategic plans.

MedBAN's challenge to "**Develop new sustainable offer**" is aligned with key strategic objectives of tourism development plans at national level like the Annual National Tourism Strategic Action Plan and the NRRP, Greece 2.0, but also with regional RIS3 plans in almost all Greek regions including the region of Attica, and at sub-regional level, like in the Municipality of Piraeus.

MedBAN's challenges of "**Support the sector transformation regarding climate change impact**" and "**Restore coastal environment to improve attractivity**" contribute toward the implementation of strategic objectives at regional and national level, like the reform #16894 and component 1.4, "Sustainable use of resources, climate resilience and environmental protection" of Greece 2.0.

### Marine renewable energies

#### 1. Strategies' presentation

Greece's strategic position at the crossroads between East and West, combined with the region's Renewable Energy potential, the ongoing large-scale energy infrastructure projects involving Greece,

<sup>22</sup> Alpha Bank, "[Greek Tourism Industry Reloaded](#): Post-pandemic Rebound and Travel Megatrends", May 2022

and the strong commitment of the government to fulfil the European energy and climate strategic objectives, show that Greece can be a key player in shaping the EU's energy mix, with strong growth for all energy industries, including Marine Renewable Energy (MRE).

MRE represents an opportunity for economic growth in the region, can enhance the security of its energy supply and boost competitiveness through technological innovation. The continuous development of MRE technologies will also increase the efficiency of energy production. National and EU funds have been made available to invest in MRE solutions.

The main strategies shaping the Marine Renewable Energy Sources market in Greece are as follows.

### **National Energy and Climate Plan (NECP)**

The National Energy and Climate Plan (NECP) 23 is the Greek government's strategic plan for climate and energy issues, setting out a detailed roadmap regarding the attainment of specific energy and climate objectives by 2030. The core objective is set for 40% reduction in GHG emissions in 2030 compared to 1990, or more than 55% compared to 2005 levels. A key objective of the NECP is to promote renewable energy sources (RES), storage systems and fuel production from RES.

#### **General objectives**

Under the NECP, Greece aims to double installed renewable energy capacity to around 20 Gigawatts by the end of the decade. Wind energy is set to increase from 4.1 GW by the end of 2020, according to the Hellenic Wind Energy Association, to 7 GW by 2030. Part of this increase in wind energy will come from offshore wind.

Exploitation of offshore wind is the most promising MRE source for the Greek Seas. Apart from the well-known advantages of offshore wind when compared with onshore (e.g., less variability, more space availability, considerably higher power), Greece has the second largest offshore wind power density in the Mediterranean Sea, following France (Gulf of Lion). The exploitation of offshore wind and wave energy is also at the center of the European Strategic Energy Technology Plan (SET Plan [EC Directorate-General for Energy et al., 2018](#)).

A series of regulatory and legislative changes are ushering in a new era for the energy sector. In addition to ongoing efforts to simplify RES licensing procedures, Greece's Energy Ministry is working on the rollout of two other policy overhauls: a legal framework for the development of *offshore wind parks*, and a national strategy for *energy storage*.

On May 26, 2022, the Greek Parliament passed law 4936/2022 entitled "*National Climate Law - Transition to climate neutrality and adaptation to climate change, urgent provisions to address the energy crisis and protect the environment*" (Government Gazette 105 / A / 27-05-2022). The National Climate Law adheres to European Union targets to cut emissions by at least 55% by the end of this decade and achieve net zero emissions of GHG by 2050.

In July 2022, Greece passed first offshore wind energy law<sup>24</sup> on the development of offshore wind parks and further simplification of renewable energy licensing, including new environmental measures. With

<sup>23</sup> Hellenic Republic, Ministry of the Environment & Energy, "[National Energy and Climate Plan](#)", Dec. 2019.

<sup>24</sup> Harry Aposporis, Balkan Energy News. [Greece passes first offshore wind energy law](#). July 29, 2022.

law 4964/2022, the Greek government aims to facilitate the installation of at least 2 GW in offshore wind farms by 2030, as part of the National Energy and Climate Plan (NECP).

The NECP is partially financed by the Hellenic Republic Asset Development Fund (HRADF) and by component 1.1 of the NRRP, 'Power Up'.

### **POWER-UP, Component 1.1 of GREECE 2.0**

Transition to a low carbon and new energy model is a key high priority for Greece. The ambitious climate and energy plans include the reduction of GHG emissions, the increase of RES share in gross final energy consumption.

#### **General objectives**

The aim of Component 1.1 of the NRRP, Greece 2.0 which is part of Pillar-1 "Green Transition is to contribute to the climate and energy plans, through a batch of investments that increase the resilience of the electricity network, its capacity, and its energy storage capabilities, thus, allowing for greater penetration of renewable energy sources (RES) in the energy mix.

Strong emphasis is placed on electricity interconnections between the islands and the mainland, and in particular, the connection of the Cyclades Islands to the mainland's grid. These interventions aim to reduce energy costs, phase-out oil-fired power generation and increase the potential of the islands to support electricity generation from RES.

### **GR-ECO Islands National Initiative**

The national initiative Gr-eco is partly funded by the European Islands Facility – NESOI, which aims to facilitate the clean energy transition on EU islands.

#### **General objectives**

Towards this goal, the ARIADNE Interconnection project was recently launched. The interconnection of the Crete-Attica electricity network, an investment of 1 billion euros, is the largest project in the history of the Greek electricity system, while it is also among the top 5 most innovative DC interconnection projects at European level. It involves two submarine 500 kV cables, 335 km in length, of a total 1,000 MW transmission capacity, laid in record depths of up to 1,200 meters on the Aegean seabed.

## 2. The goals in line with MedBAN’s challenges

	Marine Renewable Energies			
Challenges	Project Development	Production optimization to reduce the LCOE	Maintenance operations	Synergies with other sectors
<b>National Energy &amp; Climate Plan</b>	•	•	•	•
<b>Power UP Pillar-1 of the NRRP Greece 2.0</b>	•	•	•	•
<b>GR-eco Islands</b>	•	•	•	•

Transition to a low carbon and new energy model is a key high priority for Greece. The ambitious climate and energy plans include the reduction of GHG emissions and the increase of RES share in gross final energy consumption.

The further development of Marine Renewable Energies is a key objective of the National Energy and Climate Plan (NECP), the ‘Power-UP’ Component of the NRRP, Greece 2.0 as well as of the national initiative GR-eco Islands.

MedBAN’s challenges with respect to Marine Renewables Energies related to ‘Project Development’, ‘Production optimization to reduce LCOE’, Maintenance operations’, contribute to the implementation of the National Energy and Climate Plan (NECP), which is aligned and partially funded by the Greece 2.0 NRRP plan, the Greek Partnership Agreement of the EU Cohesion Policy, and the strategic objectives of the HRADF.

MedBAN’s challenge “**Synergies with other sectors**” contributes to the objectives of the reform #16894 which is part of Pillar-1 “Green Transition” of the Greek NRRP. The reform #16894 aims at the establishment of new special spatial framework for RES, industry, tourism, and aquaculture to promote climate mitigation and adaptation, protection of biodiversity and development of the national economy.

### Harbours

#### 1. Strategies’ presentation

European ports are at the crossroads of supply chains. As clusters of transport, energy, industry, and blue economy, they add great value and are at the service of the European economy and society. Under the right conditions, they can be a key strategic partner in making the European Green Deal happen (ESPO, 2019<sup>25</sup>).

<sup>25</sup> ESPO (European Sea Ports Organization), Position Paper (2020) “[Roadmap to implement the European Green Deal objectives in ports](#)”.

The EU Green Deal calls for a rapid energy and green transition, which present enormous challenges and opportunities for Europe's ports. Several European and national funds are available to finance the green transition and Digital Transformation of Maritime Transport & Logistics (e.g., EU Green Deal, the European recovery instrument NextGenerationEU (NGEU), NSRF Recovery Fund). For instance, a €13 billion Greek infrastructure masterplan aims to upgrade the country's road, rail, shipping, and air links and is financed by a combination of regional, national, and European funds. 160 million euros from Greece's Recovery and Resilience Fund (RRF) will be channeled into marina and port infrastructure works and upgrades contributing to the growth of Nautical Ports and Maritime Tourism.

Greece places particular emphasis on achieving sustainable development and strongly supports the long-term strategic vision by 2050 of an EU economy that does not burden the climate.

### General objectives

Sustainable operation is essential for ports, as they have always grown on a mutual benefit with the cities they are located and adjacent to. The Greek Privatization Program is seen as a lever for enabling ports' sustainability transition<sup>26</sup>. Sustainable development is also an integral part of the mission and mandate of the Hellenic Republic Asset Development Fund (HRADF) which was established on the 1st of July 2011 and operates pursuant to the provisions of Law 3986/2011.

HRADF's portfolio includes 10 Port Authorities, established in the form of sociétés anonymes, the port of Alexandroupolis, Corfu, Elefsina, Heraklion, Igoumenitsa, Kavala, Lavrion, Patras, Rafina and Volos respectively until 2062-2063. HRADF holds 100% of the share capital of the afore mentioned Port Authorities.

The country's policy framework regarding ports, as outlined in the national strategic plans National Strategy for Sustainable and Fair Growth 2030, the new Greek National Energy and Climate Plan (NECP), the National Adaptation Strategy Climate Change (NASCC), the National Research and Innovation Strategy for Smart Specialization 2014-2020 (RIS3)<sup>27</sup>, and the National Circular Economy Action Plan - a horizontal action aiming at the optimal use of resources (energy, water, raw material) in every economic sector- and summarized in the report by Lambiris & Christantoni (2019),<sup>28</sup> is presented below.

### National Strategy for Sustainable and Fair Growth 2030<sup>29</sup>

Presents ambitious climate and energy goals through a comprehensive and coherent program of measures and policies targeting, inter alia, the transport industry & logistics. The port industry, which is closely linked to the logistics sector and the wider field of intermodal transport, is of vital importance to the national economy. The upgrade of rail and road links in Northern Greece and the Balkans already underway will extend the hinterland of Greek ports to Central Europe providing an extensive pan-European transport network with benefits for global supply chain and trade.

<sup>26</sup> R. Lambiris, M. Christantoni "[The Greek Privatization Program as a lever for navigating ports' sustainability transition](#)", Hellenic Republic Asset Development Fund (HRADF), 2019.

<sup>27</sup> [National Research and Innovation Strategy for Smart Specialization 2014-2020](#) [2015].

<sup>28</sup> R. Lambiris, M. Christantoni "[The Greek Privatization Program as a lever for navigating ports' sustainability transition](#)", Hellenic Republic Asset Development Fund (HRADF), 2019.

<sup>29</sup> [National Strategy for Sustainable and Fair Growth 2030](#) [2019].

### **The new Greek National Energy and Climate Plan (NECP)<sup>30</sup>**

The energy transition in the shipping sector is one of the main priorities for the period 2021-2030. The policy measures that have been specified in the above policy priority are divided in the following sections:

- Promoting infrastructure for the use of natural gas in shipping and
- Promoting the use of RES, Electricity and Electrification, and energy efficiency improvement actions in ports.

### **National Adaptation Strategy Climate Change (NASCC)<sup>31</sup>**

One of the key objectives of the NASCC is to promote adaptation actions and policies in all sectors of the Greek economy, with emphasis on the most vulnerable ones:

- Coastal systems: raise quay walls in ports.
- Maritime transport: Examination of the need for relocation, redesign and strengthening breakwaters to protect ports and in general of maritime transport infrastructure from larger waves.

### **National Research and Innovation Strategy for Smart Specialization 2014-2020 (RIS3)<sup>32</sup>**

Some of the key priorities of RIS3 are:

- The Development of smart port infrastructures and use of information Port Community Information Systems (PCSs).
- The Development of energy consumption optimization technologies in port operations

### **National Circular Economy Action Plan<sup>33</sup>**

The principles and goals of the circular economy (reduction of environmental footprint, optimization of production and maximization of the use value of products, minimization of waste, use and reuse of materials, etc.) should be integrated in the design, operation, and development of ports, but also in the activities of providers and users of port services, and of logistics services, which are developed around ports or in collaboration with port operators.

### **Regional Growth Strategies**

The development of port infrastructure is also supported by several strategies at the regional level which are listed under the Presidency of the Government of the Hellenic Republic<sup>34</sup>. Many projects are planned for development which will be financed by a combination of instruments from regional, national, and European funding mechanisms. An example of such a plan is: Thessaloniki 2030 (€9.3 billion for more than 30 projects, among which is the upgrading of the Port of Thessaloniki according to the Thessaloniki Port Authority's master-plan).

<sup>30</sup> [National Energy and Climate Plan](#) [2019].

<sup>31</sup> [National Adaptation Strategy Climate Change](#) [2016].

<sup>32</sup> [National Research and Innovation Strategy for Smart Specialization](#) 2014-2020 [2015].

<sup>33</sup> [National Circular Economy Action Plan](#) [2018].

<sup>34</sup> Hellenic Republic, "[Strategic Plans for Regional Growth](#), 2023-2030", 2023.

## 2. The goals in line with MedBAN's challenges

	Harbours		
Challenges	Smart ports	Green ports	Resilient Ports
<b>National Strategy for Sustainable and Fair Growth 2030</b>		•	•
<b>The new Greek National Energy and Climate Plan (NECP)</b>	•	•	
<b>National Adaptation Strategy Climate Change (NASCC)</b>		•	•
<b>National Research and Innovation Strategy for Smart Specialization 2014-2020 (RIS3)</b>	•	•	
<b>National Circular Economy Action Plan</b>		•	•
<b>Regional growth strategies</b>	•	•	

The port industry, which is closely tied to the logistics sector and to the wider field of intermodal transport, is of vital importance to the Greek economy. A combination of actions under several strategies at the national and regional level support the upgrading of the port infrastructures to turn them into smart, green, and resilient ports.

MedBAN's Harbours' challenges related to 'Smart Ports', 'Green Ports', and 'Resilient Ports' contribute to the implementation of all relevant port development strategies and funding mechanisms such as the Greek National Strategy for Sustainable and Fair Growth (2030) which is partially financed by the NRRP Greece 2.0.

## C. Italy

### 1) General strategies

#### A) Strategies' presentation

#### Italian National Strategy

In Italy, the Blue Economy is a strategic sector for the economic development of territories in the short- and long-term period.

##### General objectives

At national level, the blue economy sector is based on seven main productive sectors:

1. **Marine living resources:** it includes activities related to the primary production, the processing of fish products and the distribution of fish products.
2. **Marine non-living resources:** it refers to the extraction of marine natural resources.
3. **Marine renewable energy:** it refers for instance to offshore wind platforms.
4. **Ports Activities:** it includes all the activities that take place within ports, both industrial and touristic ports.
5. **Shipbuilding:** understood as all the activities of boat building, shipbuilding and demolition, the manufacture of instruments for navigation, and the construction and installation of related industrial machinery and equipment.
6. **Shipping:** it includes freight and passenger transports, but also complementary activities as for instance services for transport (insurance and brokerage).
7. **Coastal Tourism:** it includes all the activities implemented for the welcome and host of tourists in coastal areas, including accommodations and transports.

It is worth to mention that the Blue Economy can count around 199.000 enterprises operating in its sectors of interest. These enterprises account for 3.3% of the country's total businesses. In this context, the Centre and South of Italy are the two areas with the highest concentration of Blue Economy Enterprises, accounting for 4.3% of total enterprises for both two macro-territorial divisions.

The Blue Economy sector can count on two main sources of financing: on one side, at national level, the National Recovery and Resilience Plan (PNRR); on the other side, at regional level, the Smart Specialization Strategies.

#### National Recovery and Resilience Plan (PNRR)

The National Recovery and Resilience Plan (PNRR) stands as a strategic corridor to bring Italy up to European standards and enhance the competitiveness of the sector. The investment objectives described in the PNRR range from protecting biodiversity to contributing to sustainable and circular development of blue assets, to increasing marine renewable energy and digitizing port logistics.

##### General objectives

In particular, the main areas of intervention related to the Blue Economy are the following:

- The Component 2 of Mission 3 of the PNRR, "Port system development" aims to minimize the dependence on fossil fuels and the environmental impact of the maritime sector. In particular, the PNRR allocates €270 million of interventions to improve the environmental sustainability of ports and an additional €700 million to electrify docks.
- The Mission 2 "Circular Economy and Sustainable Agriculture" focuses as well on the Blue Economy Sector. In this context, € 800 million are allocated to support the renewal of naval fleets and contribute to the reduction of the environmental impact of maritime transport, improve social cohesion by ensuring territorial continuity through sustainable maritime services whose attractiveness and convenience for passengers will be enhanced. Furthermore, € 400 million are allocated for the restoration and protection of marine habitats, aimed at reversing the biodiversity degradation trend, and promoting the sustainability of fisheries, tourism, and aquaculture.

### Smart Specialisation Strategy (S3)

The Cohesion Policy focuses on innovation-driven socio-economic development of territories, through innovative multi-level and multi-stakeholder governance – namely, the Smart Specialisation Strategy (or S3), aimed at identifying R&D Investment priorities that complement the resources and production capacity of a territory in order to build comparative advantages and sustainable growth paths in the medium and long term. The Smart Specialisation Strategy is adopted by the EU regions, including the Italian ones, and Member States within the Cohesion Policy programming in order to identify objectives, priorities and actions for optimising investments effects in research and innovation, by concentrating resources on areas with greatest growth potential. The goal is to maximise results, boost competitiveness and provide quality employment.

#### General objectives

Investment priorities are identified based upon an interactive process of public-private cooperation defined as an entrepreneurial discovery process – i.e., entrepreneurs endowed with scientific, technological and engineering expertise as well as market knowledge, to produce and share information on new economic activity domains in which the territory excels or has the potential to excel in the future, and any limits or constraints to be managed; and, in response, the public sector generates ad-hoc policy initiative.

#### REGIONAL STRATEGIES

The regional strategies considered for the analysis are four and distributed throughout the Italian territory. The S3 analysed in this context are (from northern to southern Italy):

- S3 Campania Regional 2021 - 2027;
- S3 Lazio Regional 2021 - 2027;
- S3 Liguria Regional 2021 - 2027;
- S3 Friuli Venezia Giulia Regional 2021 - 2027.

### Campania Region

In Campania Region, the Blue Economy sector represents the 4.1% of regional entrepreneurial asset. In Naples' Province, there are 16.987 operating in the Blue Economy sectors, mainly operating in the Coastal Tourism, Shipbuilding, Ports Activities and Scientific Research sectors. The Blue Economy

supply chain contributes to 5.1% of the entire regional economy, higher than national average (3.7%). Despite the importance of the sector, there are still several opportunities to enhance and improve the Blue Economy within the region, also in terms of sustainable progress.

The region is currently investing resources in order to enhance:

- the growth of trade flows in its ports, mainly by improving the infrastructure systems for greener, smarter and more resilient ports.
- the diversification of regional production chains aimed at increasing the promotion of maritime resources in its different economic dimensions with specific focus on those related to the bioeconomy.

In this sense, the Campania Region is implementing the Smart Specialization Strategy in line with the EU Blue Growth objectives. It is strongly investing in innovation and development of new technologies for the automation and security of logistics operations, also focusing on the sustainability of these operations, as for instance ensuring a better energy efficiency. It is also identifying and supporting new enterprises and start-ups oriented to develop innovations for the protection of the marine and coastal environment, particularly with interventions aimed at the development and dissemination of technological solutions. In this context, the S3 is focusing on five major thematic clusters: blue biotechnologies; maritime technologies; protection and enhancement of the marine environment; logistics and safety of the sea.

## Lazio Region

Focusing on *Blue Economy*, Lazio Region intends to consolidate a maritime identity appropriate to its coastal development and create the institutional, entrepreneurial, and service synergies useful to the characterisation of Lazio as a territory that can base a significant part of its economic and employment development on the sea, creating a symbiotic and harmonious consolidation of all sectors involved in the Sustainable Blue Economy. Indeed, the main new element compared to the 2014-2020 Strategy concerns the introduction of two new Areas of Specialization (AS): "Automotive" and, more interestingly, "Blue Economy."

According to the 2021 *Maritime Space Management Plan*, Lazio interests concerned and related to MedBAN are: *Environmental, Landscape and Coastal Protection; Tourism; Fisheries and Aquaculture; Maritime Transport and Ports; Energy*. By following this regional strategy, Lazio wants to ensure that the Blue Economy gives rise to a sustainable economic model.

The focus has been laying on the "hard" aspects (harbours, shipbuilding, logistics). In particular, it is a priority to give new functional impetus to the port system - specifically the port of Civitavecchia – by improving infrastructures. It is also crucial to relaunch commercial maritime activities, in particular the goods sector, which has a high multiplication factor (return of EUR 2.8 per Euros invested). Lazio intends to highlight the Agrifood sector as well, particularly the sustainable fisheries: in terms of added value, this is not the most important field, but it is a focal point in terms of employment.

Furthermore, key factors will be logistics and the development of renewable fuels with a low environmental impact: consequently, a reskilling plan for professionals is going to be laid out. Last but

not least, the sector that contributes more than any other to Lazio's Blue Economy, tourism: it must be digital, sustainable and of quality, leading to the need for a requalification of marine areas.

## Liguria Region

The S3 of Liguria Region adopts a place-based approach, focused on the territorial context needs and peculiarities, aiming at enhancing potential, knowledge and skills on a regional scale. From 2019 it was carried out a strategy update, given the changes of the socio-economic context, of the research and innovation governance. The update of S3 2021-27 (approved with D.G.R n.1321 of 22/12/2022) was elaborated in the light of the changes observed in the regional production system and the related challenges for innovation identified. An important part of the process of defining the S3 Liguria 2021-2027 was the public consultation: all civil society was invited to express their opinion to help the Regional Administration define the priorities and objectives of the new S3 for the 2021-2027 programming period.

The three areas of specialization identified in the regional S3: **Technologies of the sea, Safety and Quality of life in the territory** and **Health and Life Sciences**. These became priority areas over time, also following the updated context analyses and the continuous process of stakeholder consultation and entrepreneurial expansion in the area.

## Friuli Venezia Giulia Region

In the current juncture of crisis caused by the epidemiological emergency from COVID 19, the S3 Friuli Venezia Giulia Region plays a renewed important role, engaging public policy holders and local actors in the joint definition of territorial development objectives that contribute, as far as they are concerned, to provide concrete answers to current challenges, in line with the objectives proposed by the 2030 Agenda for Sustainable Development, the European Green Deal and the Recovery Plan for Europe (Next Generation EU).

In this sense, the Strategy aims to identify innovative solutions aimed at accompanying the territory in the inevitable transformations accelerated by the pandemic emergency, strongly correlated with the themes of sustainable development and digitization, as development guidelines identified at EU and international level.

Through its S3, the Friuli Venezia Giulia Region has built a strategic framework of actions, with the following objectives:

- the competitive consolidation and repositioning of regional industrial and production companies towards supply chain segments with higher added value;
- the change of the regional economic production system towards new areas, capable of generating new employment, opening new markets or market segments, developing new, modern, and creative industries.

The update of the areas of specialization and development trajectories 2021-2027 approved by the S3 Strategic Steering Committee provides the following five areas of specialization, to which a total of twenty-four development trajectories are correlated:

1. Energy transition, circular economy and environmental sustainability;
2. Intelligent Factory and Sustainable Development of Made in Italy supply chains;

3. Maritime Technologies - Sustainable Waterborne Mobility and its land connections;
4. Health, Quality of Life, Agribusiness and Bioeconomy;
5. Cultural heritage, design, creative industry, tourism.

## **B) The goals in line with MedBAN's challenges**

### **Sustainable aquaculture**

#### **CAMPANIA REGION**

The Campania's Administration strategy focuses on Sustainable Aquaculture as one of the key economic sectors for the region. With reference to this sector, the Region aims to foster environmentally sustainable, resource-efficient, innovative, competitive, and knowledge-based aquaculture in line with the EU Strategy on Blue Growth. It is investing in the development and testing of new technologies for the environmental monitoring and the biodegradable applications for aquaculture. These technologies aim at changing farming practices, improving the cultivation techniques and the monitoring of aquaculture farms.

#### **LAZIO REGION**

MedBAN's sector "Sustainable Aquaculture" is in line with Lazio's regional approach in the field. The relevance lies in the fact that the strategy covers the related project's sectoral challenges, aiming at the same goals: improve productivity, innovate techniques, and protect marine environment.

#### **LIGURIA REGION**

The region is in first place in the yachting sector and in second place for shipbuilding and shipbuilding activities, port and maritime transport and shipowner consistency, however in terms of aquaculture and fishing sectors, it does not cover the first national positions.

#### **FRIULI VENEZIA GIULIA**

The S3 of Friuli Venezia Giulia through wants to increase the value of territorial resources by promoting safety and security of production and the resilience of the value chains of the regional business system, through the integration of innovation interventions on sustainable and circular supply chains able to bring value to the consumer, has given priority to specific process such as innovative agriculture and breeding (including forestry, aquaculture and mariculture) that are sustainable (also through agro-ecological practices), all actions in line with the challenges.

### **Sustainable fisheries**

#### **CAMPANIA REGION**

The Campania's Administration strategy focuses on Sustainable Aquaculture as one of the key economic sectors for the region. With reference to this sector, the Region aims to foster environmentally sustainable, resource-efficient, innovative, competitive, and knowledge-based aquaculture in line with the EU Strategy on Blue Growth. It is investing in the development and testing of new technologies for the environmental monitoring and the biodegradable applications for aquaculture. These technologies aim at changing farming practices, improving the cultivation techniques and the monitoring of aquaculture farms.

## **LAZIO REGION**

MedBAN's sector "Sustainable Fisheries" meets Lazio's intents. Particularly crucial for employment, this sector is treated accordingly to the project's challenges: it intends to fight illegal fishing by monitoring fishing areas, valorise the whole supply chain and adopt pollution – decreasing approaches.

## **LIGURIA REGION**

The region finds crucial to invest in new products and technologies related to various processes: ships refitting, energy efficiency of naval and nautical means, development of new eco-sustainable processes and technologies for shipbuilding (with attention to the entire life cycle of the vessel) and ship repair to guarantee increasing sustainability. Particular attention is placed to reducing noise pollution.

## **FRIULI VENEZIA GIULIA**

The S3 of Friuli Venezia Giulia promotes safety and security of production and resilience of the value chains of the regional business system, through the integration of innovation interventions on sustainable and circular supply chains able to bring value to the consumer. In addition, there are several actions towards increasing sustainability and decreasing ship pollutions.

## **Sustainable tourism**

### **CAMPANIA REGION**

In Campania, most of the enterprises that operate in the Blue Economy sector are concentrated in the hospitality sector, which is closely related to coastal tourism. Coastal Tourism includes all the activities implemented for the welcome and host of tourists in coastal areas, including accommodations and transports. In this context, the regional administration is promoting a set of strategies aims at restoring coastal environment to improve the attractiveness of the areas, e.g. through the conservation and preservation of the coastal heritage, the requalification of the coastal areas, in particular those involved in the ports operations, the preservation of the environmental ecosystem, the conservation of biodiversity.

### **LAZIO REGION**

This MedBAN's sector is totally coherent with Lazio's regional interest: they both aim at creating a new and sustainable way of managing economic activities by the sea, developing innovative green opportunities, and improving the attractiveness for a customer base which is more and more concerned with climate change issues.

### **LIGURIA REGION**

Liguria region is investing in the valorisation and protection of the marine and coastal areas through: development and application of marine and environmental monitoring systems, including AI-based systems and marine litter systems; meteo-marine modelling, measurement and modelling of waves and currents and sea level; green ports, cold ironing, electrification of ships, green propulsion and circular economy models; development and use of technologies and biotechnologies for the management of environmental emergencies and restoration interventions also extended to coast/river interaction. These are crucial process that will help all challenges related to the sector.

## **FRIULI VENEZIA GIULIA REGION**

The S3 Friuli Venezia Giulia promotes sustainable tourism, as strategic sector for the development of the Region. In particular, the investments are focused on restore coastal environment to improve attractivity and support the transformation towards a more sustainable model while reducing the negative impact on the environment.

### **Marine renewable energies**

## **CAMPANIA REGION**

Campania Region is investing in Marine Renewable Energies. In particular, the Campania Smart Specialization Strategy (S3) is investing in Marine Renewable Energies with specific reference to the technological trajectories dedicated to maritime technologies for the sustainability. It is investing in the development of new projects, for instance by experimenting new solutions for the naval engine systems powered by alternative and renewable energies, both for the shipping sector and the ports efficiency.

## **LAZIO REGION**

This MedBAN's sector is clearly linked to Lazio's regional initiatives. The regional administration identifies the main challenges related to the renewable energies in the field of ports and ports infrastructure, which need to be fuelled, managed and articulated in a greener and smarter way. The energy required can be procured by the sea itself and its own biological and non-biological resources.

## **LIGURIA REGION**

The region promotes processes oriented towards the use of renewable energy and circular economy models in terms of resources. The priorities are, in particular, to make the production sector and the energy-intensive public building stock more efficient from an energy point of view; to encourage the use of renewable energies, both in the private and public sectors, also through the promotion of innovative forms such as energy communities; to encourage the implementation of circular economy models aimed at strengthening the competitiveness of the production system with a view to efficient use of resources.

## **FRIULI VENEZIA GIULIA REGION**

S3 of Friuli Venezia Giulia promotes new sustainable ways to reduce climate change impact through energy efficiency actions that would tackle the challenges, i.e., reducing energy consumption; recovery and reuse of energy waste, development of technologies for electric boating: energy solutions from renewable sources aimed at developing the network of regional marinas as energy hubs and systems for boats etc.

### **Harbours**

## **CAMPANIA REGION**

Campania region can count on two industrial ports of primary level, and a multitude of fishing ports, notwithstanding the several touristic ports that link together the region and its islands. In this context, the Region is investing in the ports infrastructure systems. It is implementing new technologies and solutions for the creation of green ports; it is digitalizing the port services for the optimization and sustainability of the port's activities (smart ports). Moreover, it is promoting the integration between the ports logistics services and the navigation monitoring systems, and the integrated management of cities

and ports. It is also investing in new docking systems aim at reducing the energy consumption and improve the port security.

### **LAZIO REGION**

MedBAN's sector "Harbours" is in line with Lazio Regional objectives related to ports. Specifically, a smart ports infrastructure is needed to improve regional ports competitiveness and to affirm Lazio as a regional maritime bridgehead in the field of transportation; ports need to turn green in order to meet environmental international and regional goals and to find innovative and more efficient managing techniques.

### **LIGURIA REGION**

The region contributes to building greener, smarter, and more resilient ports through several actions. It aims at consolidating the good performance of the commercial and pleasure waterway transport system, developing technologies to further reduce the environmental impact both in terms of emissions into and into the air sea of the units and of the assistance and port services, also in relation to noise pollution ed to wave formation. Another important objective is guaranteeing an increase in traffic from a sustainable perspective.

### **FRIULI VENEZIA GIULIA REGION**

In Friuli Venezia Giulia, one of the main objectives is building smart and green ports, through several actions, such as development of digital twins of regional ports/interports/railway and possibly road networks, also with integration of the environmental system and monitoring network; product/process/service technological innovation interventions, aimed at developing virtual tools - digital twins - for managing the regional port/interport system and their connections etc.

## **2) Sectoral strategies**

### **Sustainable aquaculture**

#### **1. Strategies' presentation**

#### **S3-CAMPANIA 2021-2027**

The aquaculture is among the key sectors of Campania Region. It represents a strategic opportunity in terms of productivity, economic value, and employability. In order to make the best out of this strategic sector, the Campania Region agrees on the importance of investing in innovation, development and sustainability of the productive processes, in line with the Blue Growth European Strategy. In this context, the Campania Smart Specialization Strategy (S3) is investing in the Aquaculture sector and on its sustainability at Environmental, Social and Economics level.

The Strategy has been funded through the financial resources of the EMFAF Programme 2014 – 2020 aimed at promoting an economically and environmentally sustainable development for a regional Blue Growth.

## General objectives

The strategy aims at reaching the following objectives:

- Foster environmentally sustainable, resource-efficient, innovative, competitive, and knowledge-based aquaculture.
- Promote marketing and processing of these sectors.

This strategy takes into consideration the targets of the Marine Strategy Framework Directive (MSFD) and adopt the recommendations on environment and marine biodiversity protection of the FAO and other International Organizations specialized in aquaculture.

### S3-LAZIO 2021-2027

Lazio's regional initiatives on aquaculture are mainly meant to develop technical skills and come up with innovative methodologies and indicators for improving environmental monitoring. In this sense, it is useful to remind the regional project (2019 – 2021) *Identification and mapping of areas suitable for aquaculture (AZA)*. It was funded by Lazio region within the EMFAF Programme and promoted the blue economy and the coordinated planning of maritime spaces for the sustainable development of aquaculture, e.g., protection of ecosystems, reduction of potential environmental impacts and conflicts in the regional "sea system". The project identified new marine areas to be assigned to aquaculture (AZA - Allocated Zones for Aquaculture), monitoring protocols to reduce environmental interactions and promoted the ecosystem approach and the sustainable use of resources in coastal marine areas.

## General objectives

The main actions are:

- Development of innovative technologies and plant engineering for sustainable aquaculture.
- Development of technologies for *Precision Fish Farming*.
- Development of breeding technologies aiming at reducing dependency on veterinary drugs.
- Development of technologies for the environmental restoration of ecosystems with high productivity (e.g., marine phanerogams, macroalgae forests, coralliferous and deep ecosystems with mobile and hard seabed).
- Development of IT technologies (video and augmented reality) for observation of the marine habitat.

### S3-LIGURIA 2021- 2027

As for the S3 of Liguria Region, in terms of aquaculture sector, it does not cover the first national positions.

### S3 – FRIULI VENEZIA GIULIA 2021 – 2027

The S3 of Friuli Venezia Giulia through the development of an integrated bi-economic approach to increase the value of territorial resources by promoting safety and security of production and the resilience of the value chains of the regional business system, through the integration of innovation interventions on sustainable and circular supply chains able to bring value to the consumer, has given priority to specific process such as innovative agriculture and breeding (including forestry, aquaculture

and mariculture) that are sustainable (also through agro-ecological practices), achieved also considering:

1. the impact of climate, coastal and lagoon changes;
2. soil fertility;
3. water availability.

## 2. The goals in line with MedBAN’s challenges

	Sustainable Aquaculture		
Challenges	Change farming practices and improve cultivation techniques	Raise awareness and improve social acceptability	Improve aquaculture farms monitoring
<b>S3-CAMPANIA REGION 2021-2027</b>	●		●
<b>S3 - LAZIO REGION 2021 - 2027</b>	●		●
<b>S3 – LIGURIA REGION 2021 - 2027</b>			
<b>S3 – FRIULI VENEZIA GIULIA 2021 - 2027</b>	●	●	●

### S3-CAMPANIA 2021-2027

The S3 Campania strategy is in line with the MedBAN challenges related to the Sustainability Fisheries Sector, with specific reference to the challenge “Decrease Ship Pollutions” and “Sustainable Value Chain”.

In the technological trajectories of the S3 strategy “Maritime Technologies for Sustainability” and “*Protection and enhancement of the coastal marine environment*”, the regional administrations are investing in the following activities aimed at supporting the transition from the current “Campania Fisheries Management Model” to a new sustainable model, leading to an economically and environmentally sustainable, thus lasting, development in a global context of Blue Growth for the region.

Specifically, the investments are focused on:

- decreasing ship pollutions through a set of innovative solutions 4.0 for the monitoring and optimization of vessels’ emissions.

- increasing the sustainability of the fisheries' value chain through the development of protocols and technologies for the recycling and management of the waste products from the fisheries supply chain.
- increasing the sustainability of fisheries' value chain through the development and testing of new technologies for the environmental monitoring and the biodegradable applications for fisheries.

### **S3-LAZIO 2021-2027**

Lazio's Smart Specialization Strategy in Blue Economy appears coherent with MedBan's challenges in the field of sustainable aquaculture. There is a trajectory that looks substantially in line with the project: **Marine Biotic Resources** expects – *inter alia* - to develop and foresees to implement a series of activities of great interest. It is clearly noticeable that these strategies meet MedBan's challenges "Change farming practices and improve cultivation techniques" and "Improve aquaculture farms monitoring", since they all have in common the same objective of turning actual practices into more sustainable and more efficient aquaculture methods.

### **S3-LIGURIA 2021-2027**

The region is in first place in the yachting sector and in second place for shipbuilding and shipbuilding activities, port and maritime transport and shipowner consistency, however in terms of aquaculture and fishing sectors, it does not cover the first national positions.

### **S3-FRIULI VENEZIA GIULIA 2021-2027**

The S3 of Friuli Venezia Giulia through wants to increase the value of territorial resources by promoting safety and security of production and the resilience of the value chains of the regional business system, through the integration of innovation interventions on sustainable and circular supply chains able to bring value to the consumer, has given priority to specific process such as innovative agriculture and breeding (including forestry, aquaculture and mariculture) that are sustainable (also through agro-ecological practices), all actions in line with the challenges.

## **Sustainable fisheries**

### **1. Strategies' presentation**

#### **S3-CAMPANIA 2021-2027**

Fisheries is a strategic sector for Campania Region. Aware of its importance, the regional administration is investing to promote environmentally sustainable, resource-efficient, innovative, competitive, and knowledge-based fisheries in line with the Blue Growth European Strategy. In this context, the Campania Smart Specialization Strategy (S3) is investing in the Fisheries sector and on its sustainability at environmental, social and economic level.

The Strategy has been funded through the financial resources of the EMFAF Programme 2014 – 2020 aimed at promoting an economically and environmentally sustainable development for a regional Blue Growth.

#### **General objectives**

The strategy aims at reaching the following objectives:

- Develop environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based fisheries.
- Promote marketing and processing of these sectors.

This strategy takes into consideration the targets of the Marine Strategy Framework Directive (MSFD) and adopt the recommendations on environment and marine biodiversity protection of the FAO and other International Organizations specialized in fisheries.

### **S3-LAZIO 2021-2027**

Lazio's fishery supply chain is the second sector by percentage incidence, standing at 16.8%, with a number of enterprises amounting to 33,549 units. As already said, it is not a trajectory of main interest, but it represents a crucial aspect as regards employment. Lazio's main goal is to promote innovation in the fishery supply chain in a logic of safeguarding marine environment and protecting the consumer at the same time, also identifying new sites for aquaculture in coherence with the management guidelines of the areas designated for aquaculture (AZAs).

#### **General objectives**

The main objectives are:

- Development of innovative marketing strategies to promote sustainable fishing and novel foods.
- Development of new technologies and strategies for the valorisation of fishery products along the whole supply chain.
- Development of innovative systems for remote control and monitoring of fishing activity and landings, in order to effectively fight illegal fishing and poaching.
- Development of energy efficiency technologies for fishing activities.
- Development of new technologies for recovering and/or recycling lost fishing gear (re-use of discarded nets, etc.).
- Development of early warning systems: models and indicators of ecosystem collapse and biological, climatic and pollution risk.

### **S3-LIGURIA 2021-2027**

Liguria region finds crucial to invest in new products and technologies related to various processes: ships refitting, energy efficiency of naval and nautical means, development of new eco-sustainable processes and technologies for shipbuilding (with attention to the entire life cycle of the vessel) and ship repair to guarantee increasing sustainability. Particular attention is placed to reducing noise pollution.

### **S3-FRIULI VENEZIA GIULIA 2021 – 2027**

The S3 of Friuli Venezia Giulia promotes safety and security of production and resilience of the value chains of the regional business system, through the integration of innovation interventions on sustainable and circular supply chains able to bring value to the consumer, has given priority to specific process such as innovative agriculture and breeding (including forestry, aquaculture and mariculture) that are sustainable (also through agro-ecological practices), achieved also considering:

1. the impact of climate, coastal and lagoon changes;
2. soil fertility;
3. water availability.

## General objectives

In addition, there are several actions towards increasing sustainability and decreasing ship pollutions through:

- Energy efficiency in production processes, Research and development interventions, technological product/process/service and organizational innovation, aimed at the creation of production processes with reduced energy consumption and the recovery and reuse of energy waste, through the development of energy exchange networks proximity;
- Development of technologies for electric boating: energy solutions from renewable sources aimed at developing the network of regional marinas as energy hubs and systems for boats.
- Interventions of technological innovation of product/process/service, organizational and market, aimed both at accelerating the electrical transformation of nautical vehicles, and at the evolution of ports and tourist landings into producers of energy from renewable sources, as well as the potential use of the nautical park as an energy storage system for the regional energy network;
- Maintenance of the seabed of the port channels
- Research and development interventions, product/process/service technological innovation, aimed at creating systems and services for the maintenance of the bathymetry of the port channels through a continuous management of the sediment, capable of canceling the need for dredging.

## 2. The goals in line with MedBAN’s challenges

	Sustainable Fisheries		
Challenges	Decrease ship pollutions	Fight illegal fishing and control access to fishing areas	Sustainable value chain
<b>S3-CAMPANIA REGION 2021 - 2027</b>	●		●
<b>S3 - LAZIO REGION 2021 - 2027</b>	●	●	●
<b>S3 LIGURIA REGION 2021 - 2027</b>	●		
<b>S3 FRIULI VENEZIA GIULIA 2021 - 2027</b>	●		●

### S3-CAMPANIA 2021-2027

The S3 Campania strategy is in line with the MedBAN challenges related to the Sustainability Fisheries Sector, with specific reference to the challenge “Decrease Ship Pollutions” and “Sustainable Value Chain”.

In the technological trajectories of the S3 strategy “Maritime Technologies for Sustainability” and “*Protection and enhancement of the coastal marine environment*”, the regional administrations are investing in the following activities aimed at supporting the transition from the current “Campania Fisheries Management Model” to a new sustainable model, leading to an economically and environmentally sustainable, thus lasting, development in a global context of Blue Growth for the region.

Specifically, the investments are focused on:

- decreasing ship pollutions through a set of innovative solutions 4.0 for the monitoring and optimization of vessels’ emissions.
- increasing the sustainability of the fisheries’ value chain through the development of protocols and technologies for the recycling and management of the waste products from the fisheries supply chain.
- increasing the sustainability of fisheries’ value chain through the development and testing of new technologies for the environmental monitoring and the biodegradable applications for fisheries.

### **S3-LAZIO 2021-2027**

The trajectories in the field of sustainable fisheries get along with MedBan’s Challenges. Specifically, the Technology Area **Marine Biotic Resources** seems to meet the challenges “Fight illegal fishing and control access to fishing areas” and “Sustainable value chain”. The initiatives **Biodiversity and circular economy** and **Marine and Coastal Environment** are linked to the challenge “Decrease ship pollution”, promoting – *inter alia* – modelling and warning systems to detect risks related to environmental damage/all kind of polluting elements and recycling biotechnologies.

### **S3-LIGURIA 2021-2027**

The region finds crucial to invest in new products and technologies related to various processes: ships refitting, energy efficiency of naval and nautical means, development of new eco-sustainable processes and technologies for shipbuilding (with attention to the entire life cycle of the vessel) and ship repair to guarantee increasing sustainability. Particular attention is placed to reducing noise pollution.

### **S3-FRIULI VENEZIA GIULIA 2021 – 2027**

The S3 of Friuli Venezia Giulia promotes safety and security of production and resilience of the value chains of the regional business system, through the integration of innovation interventions on sustainable and circular supply chains able to bring value to the consumer. In addition, there are several actions towards increasing sustainability and decreasing ship pollutions.

## **Sustainable tourism**

### **1. Strategies’ presentation**

### **S3-CAMPANIA 2021-2027**

According to the Bank of Italy, the tourism sector is confirmed as the fastest-growing sector in Campania Region. In Campania, enterprises, and employees in the tourism supply chain account for 10.0% of enterprises and 9.6% of employees of the total productive sectors.

The situation in Campania is obviously different from province to province: the highest impact on the supply chain is registered in the provinces that are more appealing for tourists, namely Naples and Salerno; specifically, Salerno has the highest percentage of businesses compared to all the others provinces (11.6%), exceeding both the Campania and Italy averages, while Naples has the highest provincial share of employees (11.2%).

In this context, the Coastal Tourism plays a strategic role. Most of the Campania's enterprises that operate in the Blue Economy sector are concentrated in the hospitality sector, which is closely related to coastal tourism. Coastal Tourism includes all the activities implemented for the welcome and host of tourists in coastal areas, including accommodations and transports. For instance, the positive trend in international tourism was reflected in the exponential increase of port traffic.

### General objectives

The Campania Smart Specialization Strategy (S3) is therefore investing in the Tourism Sector aimed at restoring coastal environment and improving the attractivity of the areas for Touristic Activities. In line with the Campania S3, the Campania Administration has implemented the Project "Campania Sea District", that affects the sectors in line with the "EU Blue Economy Report," and intersects the technological trajectories defined by the Campania S3. The "Campania Sea District" is investing in the sustainable and innovative development of maritime services and the tourism and cultural sector connected to the sea, including through forms of public-private partnership.

### S3-LAZIO 2021-2027

This field of regional interest is particularly important. Tourism is the sector that contributes the most to Lazio's Blue Economy: it accounts for 30.9% of the added value produced (EUR 14.4 billion) and 38.1% of employment (337.4 thousand), within which the accommodation and services comprise almost 89.000 enterprises, 44.5% of the total. By ensuring beneficial effects such as climate change mitigation and adaptation, Lazio foresees to development of a sustainable form of coastal tourism. The region wants to increase the sustainability of the tourism sector by establishing an intermediation between environmental protection and maritime economic activities. It aims at creating a new and sustainable way of managing economic activities by the sea, developing innovative green offers, and improving the attractivity for a customer base which is more and more concerned with climate change issues.

### General objectives

The main objectives are:

- Development of innovative environmental accounting models, and socio-economic and environmental analysis of the impacts generated by maritime activities.
- Technologies for the mitigation and compensation of impacts, defence and naturalisation of coasts and harbours and environmental and landscape redevelopment.
- Development of an innovative model of sustainable tourism that promotes the dissemination of environmental certification methodologies and tools amongst operators in the sector.
- Development of systems for environmental and ecological characterisation.

### **S3-LIGURIA 2021-2027**

Liguria region is investing in the valorisation and protection of the marine and coastal areas through: development and application of marine and environmental monitoring systems, including AI-based systems and marine litter systems; meteo-marine modelling, measurement and modelling of waves and currents and sea level; green ports, cold ironing, electrification of ships, green propulsion and circular economy models; development and use of technologies and biotechnologies for the management of environmental emergencies and restoration interventions also extended to coast/river interaction. These are crucial process that will help all challenges related to the sector.

### **S3-FRIULI VENEZIA GIULIA**

The S3 of Friuli Venezia Giulia is carrying out several actions towards increasing sustainability to reduce the climate change impact, as well as to protect the coastal environment:

- Energy efficiency in production processes, Research and development interventions, technological product/process/service and organizational innovation, aimed at the creation of production processes with reduced energy consumption and the recovery and reuse of energy waste, through the development of energy exchange networks proximity;
- Development of technologies for electric boating: energy solutions from renewable sources aimed at developing the network of regional marinas as energy hubs and systems for boats.
- Interventions of technological innovation of product/process/service, organizational and market, aimed both at accelerating the electrical transformation of nautical vehicles, and at the evolution of ports and tourist landings into producers of energy from renewable sources, as well as the potential use of the nautical park as an energy storage system for the regional energy network;
- Maintenance of the seabed of the port channels
- Research and development interventions, product/process/service technological innovation, aimed at creating systems and services for the maintenance of the bathymetry of the port channels through a continuous management of the sediment, capable of canceling the need for dredging.
- development of vessels aimed at sharing for tourism purposes Product/service, organizational and market technological innovation interventions aimed at developing nautical means - primarily electric - suitable for sharing use and the related land and user interface, with the aim of accelerating the transition towards the MAAS (mobility as a service) paradigm for nautical tourism.

## 2. The goals in line with MedBAN's challenges

	Sustainable Tourism		
Challenges	Restore coastal environment to improve attractivity	Develop new sustainable offer	Support the sector transformation regarding climate change impact
<b>S3-CAMPANIA 2021-2027</b>	●	●	●
<b>S3 - LAZIO REGION 2021 - 2027</b>	●	●	●
<b>S3 – LIGURIA REGION 2021 - 2027</b>	●	●	●
<b>S3 - FRIULI VENEZIA GIULIA 2021 - 2027</b>	●		●

### S3-CAMPANIA 2021-2027

The S3 Campania strategy is in line with all the MedBAN challenges related to the Sustainable Tourism Sector. In fact, together with the “Campania Sea District”, there are several technological trajectories that aim at enhancing the sustainable tourism in the Campania Region and mainly in its Coastal Areas.

In particular, the strategy promotes:

- the conservation and preservation of the coastal heritage;
- the requalification of the coastal areas, in particular those involved in the ports operations (cruise and passenger transports);
- the preservation of the environmental ecosystem;
- the conservation of marine biodiversity;
- tourist and economic enhancement of the region;
- promotion of nautical tourism and land-sea intermodal systems and services;
- creation and re-functionalization of economic activities;
- employment development.

### S3-LAZIO 2021 – 2027

In Lazio's field of sustainable tourism two trajectories are relevant: **Marine and Coastal Environment** and **Sustainability and Economic Uses of the Sea**. The development of systems for environmental and ecological characterisation and technologies for the mitigation and compensation of impacts, defence and naturalisation of coasts and harbours and environmental and landscape redevelopment, as well as the Technology Areas “Management and Planning of Maritime Spaces” and “Sustainable Development of Maritime Activities”, are particularly fitting to MedBAN's “Restore coastal environment

to improve attractivity”, “Develop new sustainable offer” and “Support the sector transformation regarding climate change impact”. They all have in common the purpose of protecting and redeveloping marine environment focusing on a new, sustainable way of managing touristic economic activities.

### **S3-LIGURIA 2021-2027**

Liguria region is investing in the valorisation and protection of the marine and coastal areas through: development and application of marine and environmental monitoring systems, including AI-based systems and marine litter systems; meteo-marine modelling, measurement and modelling of waves and currents and sea level; green ports, cold ironing, electrification of ships, green propulsion and circular economy models; development and use of technologies and biotechnologies for the management of environmental emergencies and restoration interventions also extended to coast/river interaction. These are crucial process that will help all challenges related to the sector.

### **S3-FRIULI VENEZIA GIULIA 2021 – 2027**

The S3 Friuli Venezia Giulia promotes sustainable tourism, as strategic sector for the development of the Region. In particular, the investments are focused on restore coastal environment to improve attractivity and support the transformation towards a more sustainable model while reducing the negative impact on the environment.

## Marine renewable energies

### 1. Strategies' presentation

#### S3-CAMPANIA 2021-2027

Campania is among the top ten Italian regions with the most installed plans for renewable resources with 37,709 installed plants. Solar photovoltaic, with 34,939 (97.8 percent) installations is the prevailing technology. This is followed by wind power plants, which number 616 (1.7 percent).

##### General objectives

In this context, the Campania Smart Specialization Strategy (S3) is investing in Marine Renewable Energies with specific reference to the technological trajectories dedicated to the maritime technologies for sustainability.

It is investing in the development of new projects, for instance by experimenting new solutions for the naval engine systems powered by alternative and renewable energies, both for the shipping sector and the ports efficiency.

#### S3-LAZIO 2021-2027

Lazio Strategy aims at enhancing the potential of offshore renewable energy. It maps out a path to replace fossil fuels by offshore renewables, creating industrial opportunities and green jobs, in order to meet Green Deal's objectives and deadlines. In this sense, it is important to support the value chain investing in green actions which appropriately sustain measures to enable the increase of the TRL of each technology. For instance, producing electricity from the sea is compatible with other activities such as fishing and aquaculture. It is thus essential to anticipate changes and find synergies between various activities at sea. Lazio sees the main challenge related to energy in the field of ports, that, as said just above, need to be fuelled, managed and articulated in a greener and smarter way. The energy required can be procured by the sea itself and its own biological and non-biological resources.

##### General objectives

The main objectives are:

- Development of theoretical-numerical models for multidisciplinary optimised design (hydrodynamics, aerodynamics, structure, energy, robotics, marine biology, chemistry, oceanography, materials science, economics, etc.).
- Development of new flexible floating platforms (for different energy resources to be used).
- Introduction of new fuels (LNG, biofuels, etc.), use of propulsion, electrical generation and auxiliary plant innovative configurations (combined, electric, fuel cell, heat recovering, use of DC on board, etc.).
- Reduction of emissions (CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub>, PM), dynamic plant optimization, use of auxiliary plants for waste management and valorisation, and for ballast, black and grey water treatment.

#### S3-LIGURIA 2021-2027

The Liguria region promotes processes oriented towards the use of renewable energy and circular economy models in terms of resources. The priorities are, in particular, to make the production sector and the energy-intensive public building stock more efficient from an energy point of view; to encourage

the use of renewable energies, both in the private and public sectors, also through the promotion of innovative forms such as energy communities; to encourage the implementation of circular economy models aimed at strengthening the competitiveness of the production system with a view to efficient use of resources.

### S3-FRIULI VENEZIA GIULIA 2021-2027

The S3 of Friuli Venezia Giulia promotes new sustainable ways to reduce climate change impact through energy efficiency actions that would tackle the challenges:

- Energy efficiency in production processes, Research and development interventions, technological product/process/service and organizational innovation, aimed at the creation of production processes with reduced energy consumption and the recovery and reuse of energy waste, through the development of energy exchange networks proximity;
- Development of technologies for electric boating: energy solutions from renewable sources aimed at developing the network of regional marinas as energy hubs and systems for boats.
- Interventions of technological innovation of product/process/service, organizational and market, aimed both at accelerating the electrical transformation of nautical vehicles, and at the evolution of ports and tourist landings into producers of energy from renewable sources, as well as the potential use of the nautical park as an energy storage system for the regional energy network;
- Maintenance of the seabed of the port channels
- Research and development interventions, product/process/service technological innovation, aimed at creating systems and services for the maintenance of the bathymetry of the port channels through a continuous management of the sediment, capable of canceling the need for dredging.

## 2. The goals in line with MedBAN's challenges

Challenges	Marine Renewable Energies			
	Project Development	Production optimisation to reduce the LCOE	Maintenance operations	Synergies with other sectors
<b>S3-CAMPANIA</b> <b>2021-2027</b>	•			
<b>S3 – LAZIO</b> <b>2021- 2027</b>	•	•	•	
<b>S3-LIGURIA</b> <b>2021 - 2027</b>		•	•	•
<b>S3 – FRIULI VENEZIA GIULIA</b> <b>2021 – 2027</b>		•	•	•

### **S3-CAMPANIA 2021-2027**

The Campania Smart Specialization Strategy (S3) is partially in line with MedBAN challenges related to Marine Renewable Energies, specifically the one dedicated to the Project Development. It refers to the technological trajectories dedicated to technologies for the sustainability, and it mainly refers to:

- the research and development of new solutions for naval engine systems powered by alternative and renewable energies, for the shipping sector and ports efficiency.
- the installation of renewable sources power plants that potentially influence the maritime sector as well.

### **S3-LAZIO 2021-2027**

The sector of marine renewable energy is also strategically crucial. The technology area **Renewable Energy from the Sea** is, in this case, pertinent. MedBAN's challenges "Project Development", "Production optimisation to reduce the LCOE" and "Maintenance operations" are perfectly coherent with these Lazio's objectives, as they aim at creating systems, technologies and methodologies exploiting renewable energies and protecting the marine environment.

### **S3-LIGURIA 2021-2027**

The region promotes processes oriented towards the use of renewable energy and circular economy models in terms of resources. The priorities are, in particular, to make the production sector and the energy-intensive public building stock more efficient from an energy point of view; to encourage the use of renewable energies, both in the private and public sectors, also through the promotion of innovative forms such as energy communities; to encourage the implementation of circular economy models aimed at strengthening the competitiveness of the production system with a view to efficient use of resources.

### **S3-FRIULI VENEZIA GIULIA 2021 – 2027**

S3 of Friuli Venezia Giulia promotes new sustainable ways to reduce climate change impact through energy efficiency actions that would tackle the challenges, i.e. reducing energy consumption; recovery and reuse of energy waste, development of technologies for electric boating: energy solutions from renewable sources aimed at developing the network of regional marinas as energy hubs and systems for boats etc.

## **Harbours**

### **1. Strategies' presentation**

#### **S3-CAMPANIA 2021-2027**

The port system of Campania Region consists of a set of ports infrastructures that perform functions at national, regional, and local level. Campania region can count on two industrial ports of primary level, and a multitude of fishing ports, notwithstanding the several touristic ports that link together the region and its islands. The main issues related to Ports often imply an overall need of reorganization of the entire infrastructure and transportation system, as well as, of the urban areas that are located nearby the ports, and which often generate indirect solutions to problems linked to urban decline and enhance the efficiency of the local productive supply chain.

## General objectives

The Campania Region intends to improve port infrastructures and equipment of regional interest, including their adaptation to the best environmental, energy and operational standards, and to strengthen the integration of ports with the areas behind the port, through:

- infrastructural interventions to secure the regional port system, including for the protection of the natural environment;
- upgrading the infrastructure and service offerings of the integrated regional port system;
- infrastructural interventions for the development of the regional port system;
- Interventions to improve accessibility and energy self-sufficiency in regional ports;
- Interventions to reduce emissions from maritime terminals of liquid fuels in the port areas (dock electrification);
- technology applications for the development of regional ports.

In this context, the Campania Smart Specialization Strategy is investing in the ports infrastructure systems to improve their efficiency, resilience, and sustainability.

Moreover, ports are important drivers for tourism. The “Integrated Tourist Port” Project, promoted by the Campania Region within the S3 Strategy, aims to build a coordinated system of port infrastructure that meets the objectives of enhancing the tourism and economic enhancement of the region.

### **S3-LAZIO 2021-2027**

This is one of the most important development trajectories in Lazio's S3. The PNRR also envisages interventions for the Port of Civitavecchia (Mission 3: “Infrastructure for sustainable mobility sustainable mobility”, Component 2 “Interventions and integrated logistics”, 1.1: Interventions of renewable energy and energy efficiency in harbours with the aim of reducing in harbours and port cities the emissions of CO<sub>2</sub> and other pollutants related to fossil fuel combustion in harbours and port cities) for a total of almost EUR 120 million, underlining the importance of this Tyrrhenian hub and its strategic position as well. The aim is to focus on the port system of Lazio in a logic of environmental and social sustainability, for the purpose of increasing competitiveness through the strengthening of the infrastructure endowment, the implementation of the FZ, the implementation of ship-rail-road intermodality and the full connection with the European corridors, with the inclusion of the port of Civitavecchia in the European transport network TEN-T. By doing so, Lazio could become the main cruising stopover in the Mediterranean, increasing the productivity of the tourism sector and its related inducement. It is needed to recover market share of container traffic destined for Lazio that chooses to go to other Italian ports or to the more competitive Northern European ports, and to become the gateway for new traffic from Maghreb countries and North Africa in general, through Short Sea Shipping services and sea highways lines. For this purpose, it is fundamental to implement and enhance minor ports, in a logic of sustainability that enable the coexistence of environmental and landscape health while ensuring economic development at the same time.

## General objectives

The main objectives are:

- Development of optimisation models for port spaces and mobility of vehicles, goods and people aimed at optimising the processes of management of port spaces and the internal mobility of vehicles, goods and people (Port infrastructure 4.0).
- Development of systems for predictive monitoring of the impact generated by noise and emissions (Port Infrastructures 4.0).
- Development of smart networks capable of ensuring sustainable management of electricity, optimising electricity generation and consumption in ports in a coordinated way (Port Infrastructures 4.0).
- Development of an integrated modelling system, exploiting pervasive sensing, Intelligent Transport System (ITS) and Information and Communications Technology (ICT) for the planning, design, and management of sustainable and resilient port systems

### S3-LIGURIA 2021-2027

In Liguria Region, ports generate a high environmental impact due to the concentration of activities there take place and for the volume of traffic. The effects produced on the environment are particularly complex due to the plurality of polluting factors that come into play: air pollution, water pollution due to the movement of toxic substances, noise pollution. Technological development represents the fastest and most concrete way to slow down the pace growing environmental damage. In line with the analysis developed by the National Technology Platform Maritime - PTNM23 and with the European guidelines, in the field of environmental sustainability it is necessary consolidate the already good performance of the commercial and pleasure waterway transport system, develop technologies to further reduce the environmental impact both in terms of emissions into and into the air sea of the units and of the assistance and port services, also in relation to noise pollution ed to wave formation; in particular it is necessary to develop specific technologies to extend the interventions on the existing ship and, in perspective, to prepare the Italian maritime industry to face the "post hydrocarbon era". It is also necessary to pursue the reduction of the social and environmental costs of industrial processes aimed at the construction and disposal of naval and nautical units.

Port areas present very particular logistics, security, and automation problems, linked to specific infrastructures, naval and land vehicles that operate in close contact, specific activities that are carried out within the port border. At the same time, they have strong interactions with processes external, especially when, as in the Ligurian reality, the ports are located within the urban fabric, receiving conditioning from this, but even more originating them. The increase in the demand for mobility of goods and people that has characterized the last few decades and will continue into the future generates on the other hand a high external cost for the community in terms of quality of life, safety and pollution. The future objective must be to guarantee the possibility of an increase in traffic from a sustainable perspective. To achieve this objective, through the tools of Intelligent Transport Systems, environmental protection can be combined with the development of intangible ICT networks for the connection of intermodal structures, with more sophisticated technologies for automation and safe management of flows.

## General objectives

The topics in which it is advisable to invest, in line with the analysis developed by the National Technology Platform Maritime - PTNM24 and with European guidelines, are as follows:

- the safety (safety) of naval and nautical units, for which it is essential to make available tools based on risk analysis criteria with high application flexibility;
- the safety of the waterway transport system with respect to external events (security) - particularly critical in view of the high density of people and goods in naval vessels – which makes it essential to develop design methodologies and operating procedures aimed at reducing the vulnerability of the commercial and tourist shipping chain to accidents, terrorism, piracy;
- the social acceptance of waterborne transport, the development of technologies and good practices environmental practices, the achievement of increasing levels of ergonomics and comfort in relation to increasing attention to the quality of life on board for passengers and crew;
- the development of technologies able to allow significant increases in system efficiency in matter of carrying capacity.

### **S3-FRIULI VENEZIA GIULIA 2021-2027**

In Friuli Venezia Giulia, one of the main objectives is building smart and green ports, through several actions:

- Development of digital twins of regional ports/interports/railway and possibly road networks, also with integration of the environmental system and monitoring network
- Product/process/service technological innovation interventions, aimed at developing virtual tools - digital twins - for managing the regional port/interport system and their connections, in integration with the development of virtual tools for managing the maritime environmental system and its monitoring network, with the aim of achieving better management optimization of the entire system, also from the point of view of environmental impact;
- Sharing: development of boats aimed at sharing for tourism purposes Product/service, organizational and market technological innovation interventions aimed at developing nautical means - primarily electric - suitable for sharing use and the related interface on land and user, with the aim of accelerating the transition towards the MAAS (mobility as a service) paradigm for nautical tourism.

## 2. The goals in line with MedBAN's challenges

	Harbours		
Challenges	Smart Ports	Green Ports	Resilient Ports
<b>S3-CAMPANIA 2021-2027</b>	•	•	•
<b>S3-LAZIO 2021 - 2027</b>	•	•	•
<b>S3-LIGURIA 2021 - 2027</b>	•	•	•
<b>S3-FRIULI VENEZIA GIULIA 2021 - 2027</b>	•	•	•

### S3-CAMPANIA 2021 - 2027

The Campania Smart Specialization Strategy (S3) is in line with all the MedBAN challenges related to Harbours. In fact, the Campania Region is largely investing in ports infrastructure systems in order to improve these systems and enhance the presence of “smart”, “green”, and “resilient” ports. The S3 of Campania is indeed focused on ports’ improvement, specifically in the technological trajectories dedicated to Maritime Technologies for Sustainability and Logistics and Safety of the Ports Areas.

In particular, the strategy is:

- Implementing new technologies and solutions for the creation of green ports.
- Digitalizing the port services for the optimization and sustainability of the port’s activities (smart ports).
- Promoting the integration between the ports logistics services and the navigation monitoring systems, and the integrated management of cities and ports.
- Investing in new docking systems, aimed at reducing the energy consumption and improve the port security.

### S3-LAZIO 2021 – 2027

Harbours are one of the main interests in Lazio’s Regional strategy in Blue Economy. **Shipbuilding and Marine Robotics** is among the technological trajectory of intelligent development to meet challenges similar to MedBAN’s “Smart Ports”, “Green Ports” and “Resilient Ports”. The initiative *Port Infrastructures 4.0* is particularly fitting to the purpose of implementing port management, facilities, infrastructures, and services by “going green” and protecting the environment with the adoption of a sustainable point of view.

### **S3-LIGURIA 2021-2027**

The region contributes to building greener, smarter and more resilient ports through several actions. It aims at consolidating the good performance of the commercial and pleasure waterway transport system, developing technologies to further reduce the environmental impact both in terms of emissions into and into the air sea of the units and of the assistance and port services, also in relation to noise pollution and to wave formation. Another important objective is guaranteeing an increase in traffic from a sustainable perspective.

### **S3-FRIULI VENEZIA GIULIA 2021 – 2027**

In Friuli Venezia Giulia, one of the main objectives is building smart and green ports, through several actions, such as development of digital twins of regional ports/interports/railway and possibly road networks, also with integration of the environmental system and monitoring network; product/process/service technological innovation interventions, aimed at developing virtual tools - digital twins - for managing the regional port/interport system and their connections etc.

## D. Spain

### 1) General strategies

#### A) Strategies' presentation

#### **S3 Illes Balears 2021-2027 (Regional)**

The aim of this work is to carry out an analysis of the situation of smart specialisation for the key sectors and activities of the Balearic Islands, as well as for the Science, Technology, and Innovation Ecosystem of the Balearic Islands (ECTIB). Total Budget: 115.859.593 €

Funded by: FEDER REG, Own funds CAIB, Other public funds and Private funds.

#### General objectives

- Developing and improving research and innovation capacities and the take-up of advanced technologies.
- Exploiting the benefits of digitisation for citizens, businesses, research organisations and public administrations.
- Strengthening sustainable growth and competitiveness of SMEs and job creation in SMEs, including through productive investments.
- Promoting energy efficiency and reducing greenhouse gas emissions.
- Promoting renewable energies, including the sustainability criteria.
- Promoting access to water and sustainable water management.
- Promoting the transition to a resource efficient and circular economy.
- Promoting sustainable multimodal urban mobility as part of the transition to a zero net carbon economy.
- Improving equal access to inclusive and quality services in education, training and lifelong learning through the development of accessible infrastructure, including promoting the resilience of online and distance education and training.
- Promoting the socio-economic inclusion of marginalised communities, low-income families and disadvantaged groups, including people with special needs, through integrated actions including housing and social services.
- Strengthening culture and sustainable tourism in economic development, inclusion and social innovation.

#### **Sustainable Development Strategy 2030 - National**

This document defines the challenges our country faces to achieve the Sustainable Development Goals. It includes accelerating policies and actions to be prioritised, necessary to meet the 2030 Agenda, as well as a monitoring system for their achievement.

As part of the new sustainable development agenda, these goals pursue equality between people, protection of the planet and ensuring future prosperity. A new social and global contract that leaves no one behind.

## General objectives

It is Spain's strategy on sustainable development and has as main challenges:

1. End poverty and inequality
2. Addressing the climate and environmental emergency

Spain faces the challenge of improving energy efficiency and boosting the integration of renewable energies, achieving net GHG emission reductions, reducing its energy dependence, as well as energy costs.<sup>35</sup>

In order to achieve that, Spain developed different strategies and plans. There are selected the most relevant for the MedBAN project included in this General strategy:

- National Integrated Energy and Climate Plan 2021-2030 (PNIEC), which establishes the framework and the measures for the Spanish objectives for combating climate change by 2030, in accordance with the governance framework agreed at EU level.
- Roadmap for the development of offshore wind energy and marine energy, with the aim of boosting the deployment of these technologies, taking advantage of the technological advances made in recent years, which are fundamental for achieving the objectives set out in the National Integrated Energy and Climate Plan, in line also with the Law on Climate Change and Energy Transition.
- Marine Strategies in Spain (second cycle), whose main objective is to achieve Good Environmental Status in our seas, starting with the monitoring programmes and measures that that will be developed in the coming years.<sup>36</sup>

3. Closing the gap of gender inequality and end discrimination

4. Overcoming the inefficiencies of an economic system excessively concentrated and dependent

There have been also selected the most relevant actions for the MedBAN project, covered by the general Spanish strategy:

- Commitment to Marine Reserves of Fishing Interest, as examples of protected areas under the Fisheries Law, which combine the protection of fishery resources with the maintenance of professional artisanal fisheries in the area in which they are located, under an adaptive management based on permanently updated scientific knowledge. Actions for their modernisation will be developed, including the study of new possible areas and the use of new means for their surveillance and monitoring.
- Actions in support of fisheries and aquaculture research, which will also include a training dimension, strengthening scientific advice as a basis for sustainable fisheries management, from an eco-systemic approach.
- Plan for the Modernisation and Competitiveness of the tourism sector, which deploys five strategic areas of action: sustainability, product development and modernisation of the tourism

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<sup>35</sup> Sustainable development strategy 2030

<sup>36</sup> Ibidem

ecosystem, the promotion of digitalisation and tourism intelligence, tourism resilience strategies for non-mainland territories and the promotion of de-seasonality.

5. Ending job precarity
6. Reversing the crisis in public services
7. End global injustice and threats to human rights, to democratic principles and the sustainability of the planet
8. Revitalising our rural areas and tackling the demographic challenge

### **Maritime Spatial Planning (POEM) (National)**

The Spanish MSP, Planes de Ordenación del Espacio Marítimo (POEM), was adopted on the 28th of February 2023 by the Council of Ministers by Royal Decree. It establishes plans for each of the five Spanish marine subdivisions: North Atlantic, South Atlantic, Estrecho and Alboran, Levantine-Balearic and Canary Islands

POEMS must guarantee the protection of sensitive and vulnerable ecosystems, habitats and species, including those protected by regional, national or supranational regulations.

#### **General objectives**

The plans will follow a set of guiding principles, which will guide the elaboration process of the spatial planning. These are<sup>37</sup>:

- Sustainable development
- Ecosystem approach, considering biodiversity, geological and hydrological diversity of marine ecosystems, including the landscape, the interactions between them, as well as the use of ecosystem services by society and climate change. Mejora de la competitividad de los sectores marítimos
- Improved use of marine space
- Improved governance
- Active involvement of public and private actors including local coastal communities
- Adaptive management, including adaptation to climate change.
- Green transition to a low-carbon, resource-efficient economy and, linked to this, a just transition in terms of employment.
- Consideration of gender and intra- and intergenerational equity in the planning process.
- Economic diversification, seen as key to the economic sustainability of maritime sectors
- Circular economy
- Facilitating access to marine information and data by ensuring that it is kept up to date
- Preponderance of objectives of general interest
- Use of the best available scientific information, and the most appropriate scale of analysis
- Principle of precaution
- Principle of minimum impact of human activities

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<sup>37</sup> Executive Summary, Maritime Spatial Plannings, February 2023

## General objectives

- Protection of the marine environment, including marine protected areas, coastal environment, and mitigation and adaptation to effects of climate change
- Drainage, purification and quality of water, including bathing water
- National Defence
- Surveillance and control
- Research, innovation, and development
- Underwater cultural heritage

At sectoral level includes sectoral planning objectives in the following sectors:

- Aquaculture
- Extractive fishing
- Energy sector – hydrocarbons
- Energy sector - renewable energies (marine)
- Sector electrical transport and communications
- Navigation
- Port activity
- Tourism and recreation activities

## Investment strategy Balearic Islands 2030 (Regional)

The next regional accounts promote an unprecedented investment cycle, based on the roadmap agreed as part of the Pact for the Reactivation and Economic and Social Diversification of the Balearic Islands, and include projects that represent a commitment to mobilise more than €1,680 million, or 36.2% of the €4,640 million initially set out in the Strategic Investment Plan over a ten-year horizon.

## General objectives

This strategy includes 12 strategies and the most important related to the MedBAN project are: Smart Growth and Ecosystems of Innovation, Green hydrogen, energy of the future, Balearic Medtech, Sustainable and decarbonised mobility, Renewable energies and climate change, Blue Economy for Mediterranean, Innovative circular projects etc.

## B) Goals in line with MedBAN's challenges

### Sustainable aquaculture

#### Sustainable Development Strategy 2030

Actions in support of fisheries and aquaculture research for sustainable fisheries management, from an eco-systemic approach in order to improve aquaculture monitoring and development.

### **Maritime Spatial Planning (POEM)**

Strategy having one of the sectoral objectives in aquaculture the consideration of “new knowledge from research on marine cultures, especially algae” it is in line with the MedBAN challenge on improving cultivation techniques.

Another objective in line with MedBAN project is: “Strengthen competitiveness, and contribute to job creation in the aquaculture sector, by facilitating access to the most suitable areas and developing best practices with regard to the location, sizing and management of facilities.” As a result, it is included the interest on improving aquaculture farms monitoring as well as in MedBAN project.

### **Sustainable fisheries**

#### **Sustainable Development Strategy 2030**

The combination of the protection of fishery resources with the maintenance of professional artisanal fisheries in the area and the development of new systems of monitoring and surveillance are in line with MedBAN project in order to control access to fishing areas and develop a sustainable value chain.

#### **Maritime Spatial Planning (POEM)**

As one of the objectives is to “minimise the impact of different human activities on fishing grounds and fishing zones, with special attention to small-scale fisheries” as well as “reduce the negative impact of fishing activities on biodiversity”, the decrease of ship pollution is also included.

### **Sustainable tourism**

#### **S3 Illes Balears 2021-2027**

“Strengthening culture and sustainable tourism in economic development, inclusion and social innovation” is promoting the sustainable tourism and sustains innovation by developing a new sustainable offer.

The “research on the effects that global change has on the ecosystems of the Islands, the planning that needs to be developed to sustainable management of the coastal zones and the technologies aimed at monitoring and observing the monitoring of the variability of oceans and their interaction with the coastal zones, are of great interest to contribute to the design of sustainability policies for the natural environment in the context of the development of economic and tourist activity” also is a challenge for the Balearic area as well as for the MedBAN project.

#### **Sustainable Development Strategy 2030**

A Plan for the Modernisation and Competitiveness of the tourism sector, which deploys five strategic areas of action, boosts among others the sustainability and tourism resilience by developing a new sustainable offer.

#### **Maritime Spatial Planning (POEM)**

“Preserve the seascape in those areas where it is of relevant touristic and/or cultural value” as one of the objectives of this strategy, it is linked to the MedBAN challenge of restoration of coastal environment to improve attractivity. Also, a second objective is: “Ensure that the public use and enjoyment of the coastline, associated with tourism and recreational activities are carried out in a sustainable manner

and do not jeopardise the good environmental status of the marine environment” and it highlights the need of preservation and restoration of the coastline.

## **Marine renewable energies**

### **S3 Illes Balears 2021-2027**

This strategy promotes energy efficiency and reducing greenhouse gas emissions as well as renewable energies, including the sustainability criteria and encourages the development of new projects also a challenge of MedBAN project.

### **Sustainable Development Strategy 2030**

Marine Strategies in Spain (second cycle), whose main objective is “to achieve Good Environmental Status in our seas, starting with the monitoring programmes and measures” have as a goal the development and implementation of new projects.

Also, the “Roadmap for the development of offshore wind energy and marine energy, with the aim of boosting the deployment of these technologies” is another action in order to focus on the implementation of this renewable energy and develop future projects.

### **Maritime Spatial Planning (POEM)**

“Identify the areas with the greatest potential for the development of offshore wind energy in each marine demarcation” is one of the sectoral objectives of the Strategy and it shows the interest of developing future projects.

## **Harbours**

### **S3 Illes Balears 2021-2027**

Promote sustainable land, maritime and air mobility, is another objective of this strategy which boosts the sustainable use of technology also in the ports in particular related to maritime transport.

### **Maritime Spatial Planning (POEM)**

The objective related to the MedBAN challenges of this Strategy is: “For all ports, ensure that the location of dumping points for dredged material outside port service waters does not put at risk do not endanger the conservation of marine biodiversity, ensuring compatibility with the development of other economic activities” which highlights the interest of having green ports.

## **2) Sectoral strategies**

### **Sustainable aquaculture**

#### **1. Strategy’s presentation**

### **Spain's Contribution to The Strategic Guidelines For More Sustainable And Competitive Eu Aquaculture 2021 - 2030 (Esacui 21-30) (National)**

It is a **national strategy** that has as main objective: *“Promote coordinated action to boost Spain's aquaculture, providing it with the necessary tools to grow and consolidate as a system for the production of safe, healthy and sustainable food and products”.*

Due to the fact Spain is the first producer of aquaculture in UE it is essential to count on a strong planning in line with the main politics and European strategies.

### General objectives

EsAcui 21-30 is addressing the challenges facing Spanish aquaculture in the period 2021-2030 and there have been established 5 main objectives:

- promote the launching of new initiatives and consolidate existing activity,
- ensure the competitiveness and viability of the productive fabric,
- strengthen the environmental sustainability of the activity
- solving scientific and technological challenges and ensuring the management and transfer of knowledge
- improving society's perception of the aquaculture activity and its products<sup>38</sup>

The purpose and vision of this strategy for the period 2021-2030 is to implement a sustainable use of the resources, to improve the competitiveness, to ensure safe and healthy food supply, to offer jobs opportunities and reinforce the development of the coastal and rural areas as well as offer accurate information to the consumer.

In order to elaborate this strategic document 157 people belonging to 103 organizations have participated. It has been a collaborative work between competent authorities, other regional administrations, sectoral organisations, experts, and R&D&I agents.

Financial framework of the European Maritime Fund for Fisheries and Aquaculture EsAcui 21-30 is aligned with the priorities of the European Maritime Fund for Fisheries and Aquaculture (EMFAF), so as to ensure coherence between the strategic objectives of the activity and the actions to be financed.

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<sup>38</sup><https://www.mapa.gob.es/es/pesca/temas/acuicultura/plan-estrategico/estrategia-2021-2030/vision-y-objetivos.aspx>

## 2. The goals in line with MedBAN's challenges

	Sustainable aquaculture		
Challenges	Change Farming practices and improve cultivation techniques	Raise awareness and improve social acceptability	Improve aquaculture farms monitoring
EsAcui 21-30	●	●	●

The goal of this national Spanish strategy is to address the challenges by implementing innovative solutions.

In order to improve cultivation techniques, the existing activity will be consolidated by boosting R&D&I and integrating a more sustainable and efficient aquaculture. Also, a better control during the productive process of the activity will guarantee an improved monitoring and will ensure a correct management. By integrating the aquaculture in the local communities and informing adequately the consumer, the awareness and social acceptability will improve.

In conclusion, the 3 MedBAN challenges are in line with the national Spanish strategy as it focuses on the importance of consolidation of the activity, control of the activity and information to the consumers from local communities. Moreover, the boost of new technology will increase the use of better practises in the field.

### Sustainable fisheries

#### 1. Strategy's presentation

#### Illegal Fishing in The Balearic Islands (Regional)

*Document prepared by: Marilles Foundation.*

The results of this study form the basis of a medium-term project that the Fundación Marilles Foundation - together with Mallorca Preservation, Menorca Preservation, Ibiza Preservation, Conservation Collective and Blue Marine - launched in 2022 in a coordinated and collaborative way on all the islands. The document collects and classifies the most common irregular practices in the waters of Mallorca, Menorca, Ibiza and Formentera, both by the professional Balearic fleet (made up of 32 trawlers boats and some 250 boats with smaller gears), and by recreational fishing, which has more than 50,000 enthusiasts on the islands. It also identifies profiles of illegal fishermen, including some who sell the fish they catch - a right that is only reserved for fishermen with a professional licence - either as a main source of income or as a supplement. As well as the most recurrent practices, their modus operandi, the most targeted species or what they can earn through these practices.

#### General objectives

Among the lines of action needed to address the problem are:

- 1) The need to give more visibility to the problem, to study it in more depth and to collect data to fill important information gaps.
- 2) The need to provide more resources to improve inspection, surveillance and also instruction so that sanctioning proceedings end in fines; as well as the implementation of dissuasive measures and a review of the fines that in many cases "it is worth paying".
- 3 Working with fishermen and restaurants who want to be proactively involved in eradicating bad fishing practices and the illegal sale of fish.<sup>39</sup>

## 2. The goals in line with MedBAN's challenges

	Sustainable fisheries		
Challenges	Decrease ship pollution	Fight illegal fishing and control access to fishing areas	Sustainable value chain
<b>Illegal Fishing In The Balearic Islands</b>		●	

A project that requires the participation of multiple sectors and Balearic society in order to achieve the common goal of putting an end to illegal fishing and illegal sales in the Balearic Islands and that is aligned with the MedBAN challenges.

### Sustainable tourism

#### 1. Strategies' presentation

##### Spain Sustainable Tourism Strategy 2030

The Spanish Government, through the Secretary of State for Tourism, is drawing up the Spanish Sustainable Tourism Strategy 2030, a national tourism agenda to face the challenges of the sector in the medium and long term, promoting the three pillars of sustainability: socioeconomic, environmental, and territorial. To this end, a participatory process has been promoted in which the sector and the autonomous communities are being involved.<sup>40</sup>

##### General objectives

The objective of the new Sustainable Tourism Strategy for Spain 2030 is to lay the foundations for the transformation of Spanish tourism towards a model of sustained and sustainable growth, which will allow us to maintain its position as a world leader. The new model will be based on improving the competitive capacity and profitability of the industry, on the differential natural and cultural values of the destinations, and on the equitable distribution of the benefits and burdens of tourism.

<sup>39</sup> Marilles Foundation, *illegal fishing in the Balearic Islands*, 2021,

<sup>40</sup> <https://turismo.gob.es/es-es/estrategia-turismo-sostenible/paginas/index.aspx>

The Strategy proposes a tourism growth model for the coming years based on the following principles:

- Socio-economic growth, which will require working towards competitiveness and profitability in the sector, focusing on quality and accelerating the process of digital transformation.
- Preservation of natural and cultural values, on the basis that the conservation of our extensive cultural and natural heritage is a priority objective.
- Social benefit, to achieve a distribution of the benefits of the sector, and to face challenges such as the depopulation of rural areas in Spain.
- Participation and governance, structuring participatory governance mechanisms between the State and the competent administrations at all levels.
- Continuous adaptation, as it is not only about quality and improvement, but also about enabling the sector to be responsive to the new environment of constant change.
- Leadership, which aims to consolidate Spain's role as a world leader in the sector.

### Integral Plan For Tourism In The Balearic Islands 2015-2025 (Regional)

As a main objective has the promotion of responsible tourism. The Government of the Balearic Islands aims to develop an intelligent tourism model with high growth potential that will consolidate the Balearic Islands as a leading destination.

#### General objectives

The PITIB 2015-2025 has the following strategic priorities:

- a) Repositioning the Balearic Islands as a destination.
- b) Improve competitiveness (through quality)

It therefore proposes a series of actions and measures relating to LEGISLATION, BRANDING and PARTNERSHIP (public-public, public-private, and private-private) that pursue the following fundamental objectives:

- 1. Demand modelling.**
- 2. Implementing a new and flexible model of destination branding management.**
- 3. Improve collaboration between all tourism actors.**

#### 2. The goals in line with MedBAN's challenges

	Sustainable tourism		
Challenges	Restore coastal environment to improve attractiveness	Develop new sustainable offer	Support the sector transformation regarding climate change impact
<b>Spain Sustainable Tourism Strategy 2030</b>	•	•	•
<b>Integral Plan For Tourism In The Balearic Islands 2015-2025</b>		•	•

**Spain Sustainable Tourism Strategy 2030** aims to develop a new sustainable offer by improving competitive capacity and profitability of the industry as well as preserving the natural and cultural values which is a priority objective. It is also focused on climate change, and its impact on water resources, coastal destinations, and climatology. It is in line with the MedBAN project challenges as its target includes the development of a new sustainable offer, the preservation of the natural values and climate change impact.

### **Integral Plan For Tourism In The Balearic Islands 2015-2025**

As a common objective, this strategy has the promotion of the responsible tourism without diminishing, in the future, its resources or the quality of life of its residents. It is a strategy that develops a new sustainable offer, and it calls for responsibility regarding the environmental impact.

## **Marine renewables energies**

### 1. Strategies' presentation

### **The National Energy and Climate Plan (PNIEC) 2021-2030 (National)**

**The National Energy and Climate Plan (PNIEC)** foresees a diffusion of renewables of at least 42% of final energy consumption, rising to 74% in the case of the electricity sector.

#### **General objectives**

PNIEC sees the development of renewable energies as an opportunity of national technological development and a reinforcement of the industrial value chain. It envisages the development of a "Spanish Strategy for the development of offshore wind and marine energy", coordinated and aligned with the Maritime Spatial Plans.

Wave energy in Spain has a high-quality resource for its viability and development. Galicia has the highest potential energy values, with average powers between 40-45 kW/m followed by Cantabric Sea and Northern part of Canary Islands.

Offshore wind in Spain also has very important synergies with other strategic sectors, such as the shipbuilding industry (shipyards), the maritime-port sector and civil engineering. As a result, offshore wind has become a very important potential market.

In addition, it is accompanied by a support framework that seeks to significantly increase the budget for public investment in R&D&I in the field of offshore wind energy and marine energy, dedicating at least 200 million public euros in the period 2021-2023 for technological innovation in this field, depending on the maturity of the projects and the proposals presented by the different agent.<sup>41</sup>

### **The Long-Term Decarbonisation Strategy 2050 (National)**

The Long-Term Decarbonisation Strategy 2050 aims to develop the transformation of energy system for 2030-2050 drawing up the evolution of the country up to 2050 towards climate neutrality. This will

<sup>41</sup>[https://www.miteco.gob.es/es/ministerio/planes-estrategias/desarrollo-eolica-marina-energias/eshreolicamarina-pdfaccesiblev5\\_tcm30-534163.pdf](https://www.miteco.gob.es/es/ministerio/planes-estrategias/desarrollo-eolica-marina-energias/eshreolicamarina-pdfaccesiblev5_tcm30-534163.pdf)

allow the reduction emissions by at least 90%. and in order to achieve it, renewable energies as wind energy and wave energy will play an important role.

### General objectives

The objective of this Long-Term Strategy is to articulate a coherent and integrated response to the climate crisis that takes advantage of opportunities for the modernization and competitiveness of our economy and is socially just and inclusive. It is a roadmap for moving towards climate neutrality by 2050, with intermediate milestones in 2030 and 2040.

In this way, the Strategy provides medium- and long-term signals to investors, economic, social and environmental agents, and Spanish society as a whole, for the period 2021-2050.

In that sense, it has a threefold objective:

- First, to fulfil the commitments of the Paris Agreement.
- Second, to anticipate and plan the transition to a climate-neutral economy, taking into account the challenges and the social, business and political debate on its implications and needs. This transformation must be approached in a comprehensive manner, given that it affects numerous cross-cutting elements of the economy and society.
- Third, to provide a clear long-term objective, which will help to anticipate the necessary courses of action and, therefore, to maximize and take advantage of the opportunities arising from the energy transition while reducing risks.<sup>42</sup>

## 2. The goals in line with MedBAN's challenges

	Marine renewables energies			
Challenges	Project Development	Production optimisation to reduce the LCOE	Maintenance operations	Synergies with other sectors
<b>PNIEC</b>	●	●		●
<b>The Long-Term Decarbonisation Strategy 2050</b>	●	●		●

**PNIEC** and **The Long-Term Decarbonisation Strategy 2050** are two Spanish strategies that highlight the need of project developments in renewable energies, and they are in line with MedBAN challenges regarding the need of project development, the reducing of LCOE and the synergies with other sectors as shipbuilding industry (shipyards), the maritime-port sector and civil engineering. They also underline

<sup>42</sup> The Long-Term Decarbonisation Strategy 2050, Madrid 2020

the importance of implementation of new projects in marine renewable energies and the technological innovation in this field.

## Harbours

### 1. Strategies' presentation

#### Sustainable Transport Strategy in Ports (National)<sup>43</sup>

##### General objectives

State Ports has launched a **Sustainable Transport Strategy in Ports**, based on the following lines of action:

- Promoting the development of Motorways of the Sea.
- Promoting rail transport to and from ports.
- Improving the mobility of heavy vehicles in the port environment.
- Promotion of alternative energies in transport.
- Improving energy efficiency and promoting the use of renewable energies.
- Control of diffuse emissions in the handling of solid and liquid bulk.
- Improve the traceability and degree of waste recovery.
- Valorise construction waste in port landfills.
- Optimising the response to marine pollution emergencies.
- Contribute to improving the quality of water and sediments in ports.
- Contribute to avoiding the dumping of waste from ships at sea.
- Optimise the management and use of water in ports.

All these initiatives are integrated into various national environmental plans, such as the National Air Quality Plan, the National Integrated Energy and Climate Plan, the Spanish Circular Economy Strategy, as well as the Marine Strategies and Hydrological Plans linked to the improvement of marine and coastal aquatic ecosystems.

#### Port Authority of the Balearic Islands Strategic Plan (Regional)

Port Authority of the Balearic Islands Strategic Plan for the five public ports (Palma, Alcudia, Mahon, Ibiza and La Savina) and the maritime signals (34 lighthouses and over 25 beacons). It aims to develop:

- Infrastructures which deliver critical services for shipping connections and the supply of the islands
- significant tourism and socioeconomic operations in the cruise industry and recreational sailing sector, including industrial operations (repair and maintenance) and, to a lesser extent, fishing

##### General objectives

To improve service quality and efficiency in Balearic ports

There are **5 strategic lines**:

- Service excellence to the vital mobility of goods and people

<sup>43</sup> <https://www.mitma.gob.es/ministerio/proyectos-singulares/cumbre-del-clima/puertos%20-del-estado>

- Strengthening the integration of ports in their territory
- Facilitate port activities that contribute to the socio-economic development of Balearic
- Leadership in environment, sustainability and CSR
- Technological and innovative ports

## 2. The goals in line with MedBAN's challenges

	Harbours		
Challenges	Green ports	Smart ports	Resilience ports
<b>Sustainable Transport Strategy in Ports</b>	•	•	•
<b>Port Authority of the Balearic Islands Strategic Plan</b>	•	•	•

Both strategies include the necessity of development of green, smart, and resilient ports. Leadership in environment, sustainability and CSR and technological and innovative ports are 2 main objectives at the Balearic Islands region and they are in line with MedBAN project challenges.

## E. Portugal

### 1) General strategies

#### A) Strategies' presentation

### PORTUGAL 2030 Strategy

The Portugal 2030 Strategy aims to recover the economy and protect the employment, and to make the next decade a period of recovery and convergence of Portugal with the European Union, ensuring greater social and territorial resilience and cohesion.

#### General objectives

In this framework, and duly articulated with the different European mechanisms, the Portugal 2030 Strategy comprises four Thematic Agendas, considering the range of challenges that must be tackled to enable a sustainable and inclusive growth for the next decade:

1. People first: a better demographic balance, greater inclusion, less inequality:

Putting people at the center of concerns and promoting a more inclusive and less unequal society, while also responding to the challenges of demographic transition and ageing.

2. Digitalisation, innovation, and skills as drivers of development

Addressing the skills and competitiveness bottlenecks and structural transformation of the productive fabric, responding to the new technological and societal challenges of the digital transition and industry 4.0, the new post-COVID sectoral growth dynamics, the need to contribute to the empowerment and geostrategic resilience of the European Union and ensure the empowerment and modernisation of the State.

3. Climate transition and resources sustainability

Promote climate transition and the sustainability and efficient use of resources, promoting the circular economy and responding to the challenge of the energy transition and of territorial resilience.

4. An externally competitive and internally cohesive country

Boost territorial cohesion, in order to promote a harmonious development of national territory and to help reducing disparities between the different regions, particularly in the most disadvantaged areas, allied to promoting ecological and digital transitions with a strong territorial impact and overcoming the impacts of the pandemic and the economic crisis in the most affected territories.

One of the strategic areas of the Climate transition and resources sustainability Portugal 2030 thematic agenda is the Sustainable Blue Economy.

## **NRRP – THE PORTUGUESE RECOVERY AND RESILIENCE PLAN**

Portugal is set to receive €16.6 billion in both nonrepayable support and loans<sup>1</sup> from the Recovery and Resilience Facility (RRF).

### **General objectives**

The Portuguese NRRP is designed around three strategic focus areas ('missions') for investments and reforms resilience, climate transition, and digital transition.

**Resilience** aims to enhance the country's capacity to react to crisis and overcome associated current and future challenges. It promotes a transformative, lasting, fair and inclusive recovery on different levels: social, economic, productive fabric and territorial. Interventions are envisaged in areas such as health, housing, broad social responses, culture, qualifications and competences, infrastructure, innovative business investment, and forest and water management.

**Climate Transition** is intended to allow Portugal to reach carbon neutrality by 2050. Initiatives are planned, for instance, in sustainable mobility, industry decarbonisation, sea, bioeconomy, energy efficiency of buildings, and renewable energies.

**Digital Transition** aims to help accelerate Portugal's transition towards a more digital society. Significant reforms and investments to that effect range from the digitalisation of businesses and government, to providing digital competence to the educational, health, cultural and forest management sectors.

These 3 focus areas include 20 components. The sea component is assigned to the climate transition focus area and envisages the reform of the blue economy infrastructure ecosystem.

In total the Portuguese RRP envisages 37 reforms across the three focus areas that are intended to promote both economic and societal transformation through adaptation to near-future trends. They also aim to ensure that potential investment bottlenecks are overcome.

## **NSSS - NATIONAL SMART SPECIALISATION STRATEGY 2030 (ENEI 2030)**

The National Smart Specialisation Strategy 2030 was approved in June 2022, succeeding the previous ENEI (2014).

ENEI is of strategic importance as the aggregator of a national strategy for smart specialisation, as a means of promoting innovation. Thus, ENEI 2030 presents a vision for Portugal where quality of life, the creative environment, and scientific and innovative capacity stand out as factors for attracting and

retaining talent and for business dynamics, thus becoming the driving force behind a trajectory of growth and convergence.

### General objectives

At national level, the ENEI is structured in structured in 6 major areas:: (i) Digital Transition, (ii) Green Transition, (iii) Materials, Production Systems and Technologies, (iv) Society, Creativity and Heritage, (v) Health, Biotechnology and Food, and (vi) Great Natural Assets: Forest, Sea and Space., which are articulated with the specificity of the priorities of each of the NUTS II regions, seeking to maximise complementarity and synergies at the different territorial levels, amplifying the regional stakes and the multiplying effects of public policy.

The strengthening of complementarities between the thematic priorities of national nature and those of the regional nature identified in the assessment of the Strategies for Intelligent Specialisation, namely by enhancing the coherence and complementarities of the priorities of national and/or regional framework and avoiding overlaps provide a coherent alignment between the Priority Areas of the ENEI 2030 and the priorities defined in the Regional Strategies for Smart Specialisation of the 7 Portuguese regions for the period 2021-2027.

In all the 7 Regional Strategies for Smart Specialisation, in major or minor degree, the sea as a natural resource and the blue economy appears as one of the priorities.

## NOS – NATIONAL OCEAN STRATEGY 2030

The National Ocean Strategy 2021-2030 is the instrument that defines the course for the public ocean policy for the next decade. It is based on the importance of scientific knowledge, on the protection of the Ocean, on the strength of traditional and emerging sectors of the blue economy, and on the valorization of marine ecosystem services and the recognition of their role as vectors of sustainable development.

The NOS 2021-2030 aims to enhance the contribution of the sea to the country's economy, the prosperity and well-being of Portuguese people, and respond to the great challenges of the decade, strengthening Portugal's position as an eminently maritime nation.

The guiding principles of the NOS 2021-2030 are aligned with the United Nations 2030 Agenda, the European Climate Pact, the European Union's Integrated Maritime Policy, the Common Fisheries Policy, and the recent documents presented by the European Commission: Biodiversity Strategy for 2030, A Farm to Fork Strategy, and Mission Starfish 2030: Restore our Ocean and Waters.

This international alignment of the NOS 2021-2030 not only guarantees the national continuity of major global trends, but also allows for a greater alignment of policies, financial instruments and economic developments between Portugal, the European Union and the main international markets.

## General objectives

The NOS 2021-2030 is organised in 10 Strategic Goals (SGs) and distributed over the 13 Priority Intervention Areas (PIA), and its Action Plan includes 185 concrete actions, 30 of which are considered flagship due to their special scope and high potential for multiplying effects.

### Strategic Goals (SGs):

- SG1 - Fight Climate Change and Pollution and Protect and Restore Ecosystems
- SG2 - Foster Employment and a Circular and Sustainable Blue Economy
- SG3 - Decarbonise the Economy and Promote Renewable Energies and Energy Autonomy
- SG4 – Invest in the Assurance of Sustainability and Food Security
- SG5 – Facilitate Water Access & Supply
- SG6 - Promote Health and Wellbeing
- SG7 - Stimulate Scientific Knowledge, Technological Development and Blue Innovation
- SG8 - Improve Education, Qualification, Culture, and Ocean Literacy
- SG9 - Incentivize Reindustrialization and Productive Capacity and Ocean Digitalization
- SG10 – Ensure Safety, Sovereignty, Cooperation and Governance

### Priority Intervention Areas (PIAs):

- PIA1 - Science and Innovation
- PIA2 - Education, Qualification, Culture and Ocean Literacy
- PIA3 - Biodiversity and Marine Protected Areas
- PIA4 - Bioeconomy and Blue Biotech
- PIA5 - Fisheries, Aquaculture, Processing and Commerce
- PIA6 - Robotics and Digital Technologies
- PIA7 - Renewable Ocean Energy
- PIA8 - Tourism, Recreational Boating and Sports
- PIA9 - Ports, Maritime Transport, Logistics and Communications
- PIA10 - Shipyards, Shipbuilding and Ship Repair
- PIA11 - Coastal Management, Construction and Infrastructures
- PIA12 - Non-living Resources
- PIA13 – Maritime Security, Defence and Surveillance

## **B) Goals in line with MedBAN's challenges**

### **Sustainable aquaculture**

#### PORTUGAL 2030 Strategy

One of the strategic areas of the Climate transition and resources sustainability Portugal 2030 thematic agenda is the Sustainable Blue Economy. In its Strategic Area is referred the need of a resource-

efficient, innovative, competitive, and knowledge-based Sustainable Aquaculture, therefore there is an alignment with MedBAN challenges “Change farming practices and improve cultivation techniques” and “raise awareness and improve social acceptability”.

#### NSSS - NATIONAL SMART SPECIALISATION STRATEGY 2030 (ENEI 2030)

The priority area Great Natural Assets: Forest, Sea and Space, has references to the need to increase the scale of national aquaculture production, based on articulation between R&D activities, technology and business investment, so there is some alignment with the MedBAN challenges identified for the Sustainable Aquaculture.

#### NOS – NATIONAL OCEAN STRATEGY 2030

The NOS 2030 Priority Intervention Area 5 Fisheries, Aquaculture, Processing and Commerce states the need to foster aquaculture, increase productive capacity and diversify production, shrinking the impacts on the marine realm. New production methods and species for human consumption and other purposes should be developed and researched. Investing in multi-trophic and offshore aquaculture are lines of action to follow, and the challenges identified by MEDBAN, namely the change farming practices and improve cultivation techniques, raise awareness and improve social acceptability (consumer awareness), and improve aquaculture farms monitoring are completely align with the Portugal National Ocean Strategy 2030.

### **Sustainable fisheries**

#### PORTUGAL 2030 Strategy

In the Portugal 2030 Climate transition and resources sustainability thematic agenda, sustainable fisheries are referred namely the need for the fish fleet modernization with vessels with energy efficiency and digital technology, and also the restructuring of artisanal fishing and selective fishing gear. This is in line with MedBAN challenges decrease ship pollution (low-carbon ships and digital solutions) and the sustainable value chain (sustainable fishing techniques and circular economy).

#### NRRP – THE PORTUGUESE RECOVERY AND RESILIENCE PLAN

In the component Sea of the Portuguese NRRP there is a line for Green and Digital Transition and Fisheries Safety. This line will support projects to develop fishing vessels with better energy and environmental efficiency, as well as projects aimed at innovation, modernization of processes, reduction of the carbon footprint, collection of marine litter and the circular economy of companies and organizations of the fisheries value chain. This is in line with MedBAN challenges: decrease ship pollution and sustainable value chain.

### NSSS - NATIONAL SMART SPECIALISATION STRATEGY 2030 (ENEI 2030)

Promoting the valorisation of waste and effluents from fishing activities is referred in the description of the Marine exploration technologies one of the transformative activities identified in the Great Natural Assets: Forest, Sea and Space priority domain. This is in line with the MedBAN challenge sustainable value chain (circular economy: new transformation processes, use and applications recovering fish wastes and residues).

### NOS – NATIONAL OCEAN STRATEGY 2030

The NOS 2030 Priority Intervention Area 5 Fisheries, Aquaculture, Processing and Commerce states the need for the modernization of the fleet, as well as incentivize fish traceability, favouring the catches in Portuguese waters, resorting to technology like molecular identification tracing or blockchain, as well as to the use of surveillance and control on land and sea, thus preventing illegal, unreported, and unregulated (IUU) fishing and the fraudulent marketing of fish. This is in line with MedBAN's challenges identified, namely: decrease of ship pollution, fight illegal fishing and control access to fishing areas and sustainable value chain.

## **Sustainable tourism**

### PORTUGAL 2030 Strategy

In the Portugal 2030: Climate transition and resources sustainability thematic agenda, sustainable economy is one of the strategic areas, which aims to assure environmental sustainability of marine resources, linking it with strengthening the strategic economic potential of the blue economy. Tourism, namely nautical tourism, is one of the blue economy sectors so there is a slight alignment with MedBAN challenge of develop new sustainable offers. In more general terms the need of upskilling of tourism professionals and professionals of the sea is also referred in Portugal 2030 Strategy.

### NRRP – THE PORTUGUESE RECOVERY AND RESILIENCE PLAN

In the component Enterprises 4.0 of the focus area Digital Transition of Portuguese NRRP, tourism is one of the sectors referred for digital upgrading and transformation. There is thus a slight alignment with MedBAN challenge develop new sustainable offers and upskilling of tourism professionals.

### NSSS - NATIONAL SMART SPECIALISATION STRATEGY 2030 (ENEI 2030)

Tourism, although referred to in the Digital Transition, Green Transition and Great Natural Assets: Forest, Sea and Space priorities areas, is mainly addressed in the Society, Creativity and Heritage priority area of NSSS. New segments of tourism supply and experience, was identified as a transformative activity for this priority domain, with the following description:” Exploring the potential of new tourism supply segments associated with the enhancement of creative, cultural and heritage assets, the territory, landscape and natural resources, including attraction and capitalisation around

major events, as well as responding to new consumer preferences and existing assets." Thus, there is an alignment with the MedBAN challenge in this sector: develop new sustainable offers.

### NOS – NATIONAL OCEAN STRATEGY 2030

The NOS 2030 Priority Intervention Area 8 Tourism, Recreational Boating and Sports, states that "Portugal has privileged conditions for coastal and ocean tourism and for nautical, recreational, and sporting activities (...) However, tourism, recreational boating, and sports pressure marine ecosystem and species, as well as coastal and underwater heritage, and raise questions about the safety of navigation, especially locally. It is therefore important that the tourist load of different areas, especially those more sensitive, is balanced while ensuring the sustainability of tourism, an important sector of the economy." There is thus an alignment with the MedBAN challenges for this sector: develop new sustainable offers and restore coastal environment to improve attractivity.

## **Marine renewable energies**

### PORTUGAL 2030 Strategy

In the Portugal 2030 strategy Climate transition and resources sustainability thematic agenda states the need to diversify the renewable sources of energy and reducing the country's energy dependence, by accelerating the production of electricity from renewable energy sources. Marine renewable energies are not highlighted in this strategy so there is only a slight alignment with MedBAN challenges, namely the project development.

### NRRP – THE PORTUGUESE RECOVERY AND RESILIENCE PLAN

The energy area is included in the "Climate transition and resources sustainability" thematic agenda, which intends, through the development of research, innovation and the application of more efficient energy production and consumption technologies, to promote the better use of the country's resources and develop the economic sectors around renewable energy production. However, the "Hydrogen and Renewables" dimension of this agenda aims to promote the energy transition by providing support to renewable energies, with a major focus on hydrogen production and other gases of renewable origin, and not so focus on marine renewable energies.

### NSSS - NATIONAL SMART SPECIALISATION STRATEGY 2030 (ENEI 2030)

Energy is mainly addressed in the Green Transition priority area of NSSS. Energy storage was identified as a transformative activity for this priority domain, with the following description: "Development and application of new materials, technologies and systems for more efficient energy storage, enhancing reliability and penetration of renewable energies and energy transition." In this regard there is a slight alignment with MedBAN challenge: Production optimisation to reduce the LCOE, namely in finding Ocean Renewable Energy storage solutions. In Great Natural Assets: Forest, Sea and Space priority area is referred that Portugal continues to be a sought-after destination for testing prototypes in the area of marine renewable energy (wind and wave), especially in the areas of Aguçadoura and Viana do Castelo.

## NOS – NATIONAL OCEAN STRATEGY 2030

The NOS 2030 Priority Intervention Area 7 Renewable Ocean Energy, states that Portugal is a strategic country for conducting trials in several ocean sectors, with the capacity to attract direct foreign investment and try new solutions in the production and storage of renewable energy, such as green hydrogen. Investing in Renewable Ocean Energy will enable the diversification of local and renewable power sources, reducing the dependence on fossil fuels and thus greenhouse gases emissions. Portugal has the strategic added value of increasing its energetic autonomy on both mainland and autonomous regions. Therefore, is align with MedBAN challenges: project development and production optimisation to reduce the LCOE.

## **Harbours**

### PORTUGAL 2030 Strategy

In the Portugal 2030 Strategy: An externally and internally cohesive country thematic agenda, the Projection of the Atlantic coast is one of the strategic areas, which aims to improve the competitiveness of the port system and maritime transport, promote logistics networks and road-rail connections to ports, exploring the opportunities created by the reconfiguration of major maritime international trade routes. There is a slight alignment with the MedBAN challenges: Smart Ports and Green Ports.

### NRRP – THE PORTUGUESE RECOVERY AND RESILIENCE PLAN

The Ports are not directly addressed in the NRRP.

### NSSS - NATIONAL SMART SPECIALISATION STRATEGY 2030 (ENEI 2030)

Ports are addressed in the Great Natural Assets: Forest, Sea and Space priorities areas priority area of NSSS. Intelligent navigation and logistics was identified as a transformative activity for this priority domain, with the following description: "Development of competitive positioning in the global market through digitalisation, standardisation, Service Level Agreement opportunities and evolution of the Smart Port concept, including autonomous navigation and reduction of environmental impacts." In this regard there is an alignment with MedBAN challenges: Smart Ports and Green Ports.

## NOS – NATIONAL OCEAN STRATEGY 2030

The NOS 2030 PIA9 - Ports, Maritime Transport, Logistics and Communications refers that Portugal has a strategic position that allow to continue to invest in Portugal's maritime dimension and its potential as an Atlantic hub in maritime-based global logistics. The NOS 2030 states that is important to continue to important is to continue to invest in state-of-the-art automation, digitalization, and simplification of processes (Smart Ports), also in energy transition, environmental protection, namely in the waste

management of ports and in reducing air and water pollution (Green Ports), and in computer security and predictive models based on ocean data (Resilient Ports). This means that there is a strong alignment regarding the MedBAN challenges identified for this sector.

## 2) Sectoral strategies

### Sustainable aquaculture

#### 1. Strategy's presentation

#### Strategic Plan for Portuguese Aquaculture 2021-2030

The main goal of this strategy is: "Increase and diversify the supply of domestic aquaculture products, based on the principles of environmental sustainability, social cohesion, animal welfare, quality and food safety. "

The quantified objective for the time horizon 2021-2030, in accordance with the provisions of Agenda 3 of the Strategy Portugal 2030, is to achieve, during this programming period, a production of 25 000 tonnes. In 2020 the aquaculture production was 16 999 tonnes, representing a value of 99.9 million €.

The proposed goal presupposes the sustainable use of natural resources, mitigating any effects that may arise from more intensive cultivation systems, but especially focusing on farms:

- Of filter-feeding organisms, (e.g. mussels and oysters) not being subject to supplementation with artificial feed justifies the planned increase in production;
- Macroalgae and microalgae are organisms that sequester carbon and nitrogen compounds;
- Located in areas delimited by the administration which, due to local hydrodynamics, wind, current and tidal regimes, easily disperse any effluents;
- Of species using recirculation technology (RAS), which can be sustainably integrated into the environment;
- Multitrophic farms that combine different types of organisms, fish, shellfish and algae, minimising the impact of food administration on the environment.

#### General objectives

In line with the EU Communication "Strategic Guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030"<sup>44</sup>, this main goal is based on the definition of 4 axes of strategic intervention (operational objectives):

- Building Resilience and Competitiveness
- Participating in the Green Transition
- Ensure social acceptance and consumers information

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<sup>44</sup> COM(2021)236 final

- Increasing knowledge and Innovation

These 4 axes are decline in the following objectives for measures:

1. Access to space and water
2. Regulatory and administrative procedures
3. Animal and public health and animal welfare
4. Climate change adaptation and mitigation
5. Producer and market organisations
6. Control
7. Diversification and added value
8. Environmental performance
9. Communicating on EU aquaculture
10. Integration in local communities
11. Data and monitoring
12. Knowledge and innovation

## 2. The goals in line with MedBAN’s challenges

	Sustainable aquaculture		
Challenges	Change Farming practices and improve cultivation techniques	Raise awareness and improve social acceptability	Improve aquaculture farms monitoring
<b>Strategic Plan for Portuguese Aquaculture 2021-2030</b>	•	•	•

The strategic plan for Portuguese Aquaculture presents some measures very in line with the MedBAN challenges.

Regarding the MedBAN challenge Change farming practices and improve cultivation techniques, the following measures are present in the strategy: optimisation of aquaculture production units through the implementation of water recirculation systems (RAS), integrated multi-trophic aquaculture (IMTA) and aquaponics; encourage the use of sustainable food sources, with a low ecological footprint, and promote the improvement of aquatic genetic resources and their selective use for aquaculture stocks.

About Raise awareness and improve social acceptability challenge the strategic plan preview outreach campaigns, marketing strategies for aquaculture products, the creation of marks or designations of origin, appropriate labelling of aquaculture feed, adding value to aquaculture products through a

certification and traceability process and better consumer information ensuring consumer confidence in the food safety of aquaculture products.

Finally related to Improve aquaculture farms monitoring challenge the strategy previews the implementation and development of a data warehouse solution for multi-channel, so that there is a single tool for data processing enabling the construction of monitoring and control dashboards that allow the analysis of data in several dimensions.

## **Sustainable fisheries**

### **1. Strategy's presentation**

#### **MAR 2030 Program**

The Mar 2030 program is a co-financed initiative by the European Maritime, Fisheries, and Aquaculture Fund (EMFAF) aimed at promoting sustainable fisheries, aquaculture, the blue economy, and ocean governance.

#### **General objectives**

It aims to address 4 key priorities:

1. Fostering sustainable fisheries and the restoration and conservation of aquatic biological resources, where investments on board in terms of occupational safety hygiene and conditions are supported, as well as those to improve energy efficiency and reduce pollution from vessels, alongside investments in port infrastructure and initiatives for young fishermen.
2. Fostering sustainable aquaculture activities and the processing and marketing of fishery and aquaculture products, thus contributing to the food security of the Union, where we note the benefits for investments in productive innovation, decarbonisation and digitalisation of aquaculture and fish processing, susceptible of making sector companies more efficient, resilient, and competitive.
3. Promoting a sustainable blue economy in coastal, island and inland regions and fostering the development of fishing and aquaculture communities, where the assistance for local development strategies stand out, which are to be focused on entrepreneurship, creating jobs and diversifying activities and income.
4. Strengthening international ocean governance and promoting safe, secure, clean and sustainably managed seas and oceans, where the benefits are aimed at improving knowledge of the marine world and maritime surveillance and cooperation among coast guards.

## 2. The goals in line with MedBAN's challenges

	Sustainable fisheries		
Challenges	Decrease ship pollution	Fight illegal fishing and control access to fishing areas	Sustainable value chain
Mar 2030 Program	●	●	●

The Mar 2030 program focuses on the resilience of the fish industry, by adapting, restructuring, and modernising the fleet and supporting infrastructure and boosting innovation in production.

As regards actions for the fishing fleet, the Mar2030 supports the improvement of energy efficiency, decarbonisation, green energy transition and the digitalisation of activities, in line with MedBAN challenge Decrease ship pollution.

Fostering efficient fisheries control and enforcement, including fighting against IUU fishing, as well as reliable data for knowledge-based decision-making is one of the specific objectives of Mar 2030 and is in line with MedBAN challenge Fight illegal fishing and control access to fishing areas.

Finally, regarding the MedBAN challenge Sustainable value chain conservation of fisheries resources along with reducing the impact of fishing on the marine environment, including through initiatives to improve gear selectivity, and moreover actions to reduce food waste promoting circular economy, by introducing innovative solutions in the processing and marketing of fish are also in the focus of Mar2030.

### Sustainable tourism

#### 1. Strategies' presentation

##### + SUSTAINABLE TOURISM PLAN 20-23

The main objective of this plan, published in April 2023, is to "position Portugal as one of the most competitive, safe and sustainable tourist destinations in the world, through the sustainable planning and development of tourism activities, from an economic, social and environmental point of view, throughout the territory and in line with the National Tourism Strategy 2027".

Indeed, at the national level, the vision of the National Tourism Strategy 2027, published in 2017, is based on the affirmation of "tourism as a hub for economic, social and environmental development throughout the territory, positioning Portugal as one of the most competitive and sustainable tourist destinations in the world". Sustainability is therefore one of the main drivers of Portugal's tourism policy.

## General objectives

The + Sustainable Tourism Plan 20-23 has the following 4 strategic axes and specific goals:

### I - STRUCTURE an increasingly sustainable offer

#### Goals

- Ensure that the sector takes swift and effective environmental efficiency measures
- Include in public land-use planning policies provisions ensuring the sustainability of tourism uses
- Guide the structuring of products and tourism offer through principles of sustainability
- Ensure the positive impact of Tourism on communities by reducing regional asymmetries
- Develop solutions geared to the challenges of sustainability by the innovation ecosystem in Tourism
- Research and innovate for the circular economy
- Increase digitalisation in companies activity.

### II- QUALIFY the tourism sector

#### Goals

- Ensure the training of future professionals in the sector as agents of change
- Ensure the transversal integration of the pillars of sustainability in educational projects
- Educate for sustainability and the circular economy
- Empower businesses to meet the planet's demands in terms of sustainability

### III - PROMOTE Portugal as a sustainable destination

#### Goals

- Ensure that Portugal is internationally recognised as a sustainable destination
- Disseminate the sustainable tourism offer, all over the territory and throughout the year
- Promote sustainable tourism demand
- Promote sustainable tourism mobility within the national territory
- Raise tourists' awareness for responsible behaviour

### IV - MONITOR sustainability metrics in the sector

#### Goals

- Ensure continuous monitoring of sustainability metrics through a broad and stable framework of indicators
- Ensure dissemination of results

## 2. The goals in line with MedBAN’s challenges

	Sustainable tourism		
Challenges	Restore coastal environment to improve attractiveness	Develop new sustainable offer	Support the sector transformation regarding climate change impact
<b>+ SUSTAINABLE TOURISM PLAN 20-23</b>	●	●	●

The +Sustainable Tourism Plan 20-23 include as one of its areas of action the enhancement of the nautical offer, including the development of a guide to good sustainability practices for nautical infrastructures. The plan it is in line with the MedBAN challenges as its objectives and lines of action includes the development of a new sustainable offer, the preservation of natural values and to support and mitigate the impact of climate change on the sector.

### Marine renewable energies

#### 1. Strategy’s presentation

#### The Industrial Strategy for the Marine Renewable Energies (EI – ERO)

The government of Portugal has approved in 2017 the Portugal’s Industrial Strategy for Ocean Renewable Energies (EI-ERO) the industrial strategy designed to accelerate the development of its ocean renewable energy sector along with the corresponding action plan.

The major strategic objective is the creation of a competitive and innovative industrial export cluster for ocean renewable energies, like floating offshore wind energy and wave energy.

#### General objectives

The objective of the strategy is to “export innovative ocean energy technologies”, “create value by mastering intellectual property”, and “create highly qualified jobs”. EI-ERO assumes two lines of action: “stimulating exports and value-added investment” and “empowering the industry by reducing risks”. The Action Plan recommends three lines of action: “stimulating R&D and value-added industrial innovation”, “creating support to accelerate ocean energy exports through strengthening national business capacity, via attracting private investment, administrative simplification and support for the promotion of innovative products and services” and “carrying out Investor Intelligence initiatives for oceanic renewable energy”.

In line with EI-ERO guidelines, Portugal has two test zones for electricity production devices at sea, in which bathymetry, soil and resource characteristics have been studied and are made available to users.

In these areas, the environmental impact of installing devices has been partially studied, facilitating licensing.

One of them, OceanACT - Ocean Lab for Future Technologies, is located off Aguçadoura beach, in a sea region 45 m deep and 3.3 km<sup>2</sup> in area and is intended for developing technologies. The electricity generated by the devices can be injected into the electrical distribution network through a submarine cable, with 4 MW capacity and 5 km in length, with a sub-station on land. The devices 'Archimedes WaveSwing', 'Pelamis' and 'WindFloat Demo' were previously located at this location.

The other, called Viana do Castelo Pilot Zone, is located offshore of this city, in a region with an area of around 11 km<sup>2</sup> and a depth between 85 and 100 m. It has a 40 MW submarine cable, 17 km long and a sub-station on land, and is intended for demonstrating technologies that are seeking to enter or are already in the commercialization phase.

In 2022, the government announced plans to launch its first auction for offshore wind in 2023, to reach a capacity of 10 GW by 2030. This is an economic opportunity for Portugal to expand the country's existing wind manufacturing industry and take advantage of large ports and shipyards in the area

Portugal has a 25 MW floating wind project off its Atlantic coast from Ocean Wind and the first wave energy farm of 1.2 MW from Corpower Ocean is under development, with a first device already installed in 2023.

## 2. The goals in line with MedBAN's challenges

	Marine renewables energies			
Challenges	Project Development	Production optimisation to reduce the LCOE	Maintenance operations	Synergies with other sectors
<b>EI-ERO</b>	●	●	●	●

The 4 MedBAN challenges are aligned with EI-ERO Strategy.

The strategy action plan defines the test zones that will foster project development, attracting R&D investment, in terms of infrastructures and financing as well as promoting the design and optimisation of devices that will allow to reduce the LCOE. These test zones are expected to have a simplified licensing process, this streamlines the regulatory hurdles that projects might face, making it easier for them to proceed. Maintenance operations and environmental monitoring are also lines of action referred to in the EI-ERO strategy. Synergies with other sectors, like offshore aquaculture are also referred to.

## Harbours

### 1. Strategies' presentation

#### The Portuguese strategy for the enhancement of competitiveness of national commercial Ports- Horizon 2026

This strategy was published in 2017 and presents a strategic vision for the future based in 3 pillars:

- the affirmation of Portugal as a Global Logistical Platform generating value with the attributes that are now required in terms of physical dimension (quays, funds, adjacent areas available, maritime and land accessibilities) and technological and digital solutions (for the simplification of procedures and use of new technologies)
- the creation of blue business-accelerating innovation hubs in ports with the capacity to attract investment and support the internationalization of the Portuguese economy.
- the affirmation of Portugal as an LNG hub in the Atlantic, with a clear commitment to innovation in green shipping activities.

In short, the objective is that the Portuguese ports became in a near future smarter, greener and sustainable.

#### General objectives

This strategy has 3 Strategic Objectives:

- To adapt infrastructures and equipment to the increase of the size of the ships and the demand and the connections to the hinterland
- The Improvement of operational conditions of port facilities
- To create technological acceleration platforms in ports (Hub Azul Network), namely in the fields of marine renewables, offshore aquaculture, robotics, submarine cables and blue bioeconomy.

### 2. The goals in line with MedBAN's challenges

	Harbours		
Challenges	Green ports	Smart ports	Resilience ports
<b>The Portuguese strategy for the enhancement of competitiveness of national commercial Ports - Horizon 2026</b>	•	•	•

In line with the MedBAN challenges Portugal's strategy for the enhancement of competitiveness of national commercial ports - Horizon 2026 - includes measures and investments to make mainland Portuguese ports greener, smarter and more resilient. Namely, in the digital transformation for port

operations and management, green transition and diversification of the supply of clean energy in Ports and make ports more secure, safer and adapt port infrastructures to climate change.

### III. Organisation's contact of third countries

#### Blue cluster - Belgium

Blue Cluster was established at the end of 2017 as a partnership for the development and promotion of economic activities linked to the sea. Over 150 enthusiastic companies and knowledge institutions have joined since then. Blue Cluster is an independent and neutral partner supporting Flemish companies in setting up partnerships with other companies, knowledge centres and government agencies with a view to developing and promoting offshore economic activities.

Sectors of expertise:

- Sustainable aquaculture                       Sustainable fisheries                       Sustainable tourism  
 Marine renewables energies                       Harbours

Contact details: Marc Nutemans, CEO [marc.nuytemans@blawecluster.be](mailto:marc.nuytemans@blawecluster.be), [ceo@mhra.org.mt](mailto:ceo@mhra.org.mt)  
[info@blawecluster.be](mailto:info@blawecluster.be) ; <https://www.bluecluster.be>

#### CMMI (Cyprus Marine and Maritime Institute)

The Cyprus Marine and Maritime Institute (CMMI) is a “Centre of Excellence in Marine and Maritime Research, Technology Development and Innovation”. With a local and global outlook, CMMI aims to take advantage of the reality, that what is local in the Blue Economy, is also global, and vice versa. The institute’s vision is “to drive sustainable Blue Growth, by building on the needs of industrial and societal blue economy stakeholders.”

Sectors of expertise:

- Sustainable aquaculture                       Sustainable fisheries                       Sustainable tourism  
 Marine renewables energies                       Harbours

Contact details: Zacharias Siokouros, CEO, CMMI, [info@cmmi.blue](mailto:info@cmmi.blue) ; [zacharias.siokouros@cmmi.blue](mailto:zacharias.siokouros@cmmi.blue);  
<https://www.cmmi.blue/>

#### Malta Marittima agency - Malta

Malta Marittima is a Government of Malta agency that was established through Legal Notice 41 of 2016. One of the Agency’s main objectives is to bring industry and government stakeholders together to focus and promote the continued and enhanced development of the marine and maritime industries in the Maltese Islands. Malta Marittima Agency strives to oversee the effective implementation of the Integrated Maritime Policy and to promote the Maritime Economy at the local, European, and international levels.

Sectors of expertise:

- Sustainable aquaculture                       Sustainable fisheries                       Sustainable tourism  
 Marine renewables energies                       Harbours

Contact details: Edward Sultana, cluster manager, [info.mm@maltamarittima.org.mt](mailto:info.mm@maltamarittima.org.mt) ; <https://www.maltamarittima.org.mt>

### **Malta Hotels & Restaurants Association**

The Malta Hotels & Restaurants Association (MHRA) was formed in 1958. The promoters' intention was to unite all those who own, manage or operate a hotel or restaurant, and to counsel and represent them. As the major Association in the tourism sector, the MHRA represents the interests of its members on several important national policy making bodies, including the board of the Malta Tourism Authority and all its directorates, the Institute of Tourism Studies and the Malta Council for Economic and Social Development.

Sectors of expertise:

- Sustainable aquaculture       Sustainable fisheries       Sustainable tourism  
 Marine renewables energies       Harbours

Contact details: Andrew Agius Muscat, CEO, [ceo@mhra.org.mt](mailto:ceo@mhra.org.mt) ; <https://mhra.org.mt/>

### **Marine Cluster Bulgaria**

Short description: Marine cluster Bulgaria is non-government organization consolidating the efforts of all sectors of the Blue economy in Bulgaria. Marine Cluster Bulgaria works for sustainable development of the Bulgarian maritime economy through partnerships and joint actions of all stakeholders.

Sectors of expertise:

- Sustainable aquaculture       Sustainable fisheries       Sustainable tourism  
 Marine renewables energies       Harbours

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