

# **A SUSTAINABLE BLUE ECONOMY FOR THE MEDITERRANEAN: CHALLENGES, OPPORTUNITIES AND POLICY PATHWAYS**

Jérémie Fosse, Helena Monill,  
Daniel Lozano and Roberta Milo

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eco-union

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Policy Report

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# List of acronyms and abbreviations



<b>ABES</b>	African Blue Economy Strategy
<b>ADB</b>	Asian Development Bank
<b>AI</b>	Artificial Intelligence
<b>AMPAMED</b>	Mediterranean Marine Protected Areas
<b>AMU</b>	Arab Maghreb Union
<b>AquaWest</b>	WestMed Technical Group on Sustainable Aquaculture
<b>ARLEM</b>	Euro-Mediterranean Regional and Local Assembly
<b>BEDF</b>	Blue Economy Development Framework
<b>BESP</b>	Mediterranean Blue Economy Stakeholder Platform
<b>BIG</b>	Blue Italian Growth
<b>BSE</b>	Blue Solidarity Economy
<b>CBAM</b>	Carbon Border Adjustment Mechanism
<b>CBD</b>	Convention on Biological Diversity
<b>CEF</b>	Connecting Europe Facility
<b>CESEC</b>	Central and South Eastern Europe energy connectivity
<b>CETMO</b>	Centre for Transportation Studies for the Western Mediterranean
<b>CFP</b>	Common Fisheries Policy
<b>CISE</b>	Common Information Sharing Environment
<b>CMS</b>	Copernicus Maritime Surveillance
<b>CO2</b>	Carbon Dioxide
<b>COFI</b>	Committee for Fisheries
<b>COP27</b>	Conference of the Parties
<b>CPMR</b>	Conference of Peripheral Maritime Regions
<b>DESA</b>	Department of Social Affairs
<b>DestinE</b>	Destination Earth
<b>DG-NEAR</b>	Directorate General for Neighbourhood and Enlargement Negotiations, European Commission
<b>EBM</b>	Ecosystem-Based Management
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>EC</b>	European Commission
<b>ECA</b>	Economic Commission for Africa
<b>EcAp</b>	Ecosystem Approach
<b>ECE</b>	Economic Commission for Europe (United Nations)
<b>ECLAC</b>	Economic Commission for Latin America and the Caribbean (United Nations)
<b>EFCA</b>	European Fisheries Control Agency

<b>EIA</b>	Environmental Impact Assessments
<b>EIB</b>	European Investment Bank
<b>EIF</b>	European Investment Fund
<b>EMFAF</b>	European Maritime, Fisheries and Aquaculture Fund
<b>EMFF</b>	European Maritime and Fisheries Fund
<b>EMODnet</b>	European Marine Observation and Data Network
<b>EMSA</b>	European Maritime Safety Agency
<b>EMUNI</b>	Euro-Mediterranean University
<b>ENI</b>	European Neighbourhood Instrument
<b>ENP</b>	European Neighbourhood Policy
<b>ERDF</b>	European Regional Development Fund
<b>ESCAP</b>	Economic and Social Commission for Asia and the Pacific (United Nations)
<b>ESCWA</b>	Economic and Social Commission for Western Africa (United Nations)
<b>ESIF</b>	European Structural and Investment Funds
<b>EU</b>	European Union
<b>Euro-MED</b>	Euro-Mediterranean
<b>EUROMESCO</b>	European-Mediterranean Study Commission
<b>EUSAIR</b>	EU Strategy for the Adriatic and Ionian Region
<b>FAO</b>	Food and Agriculture Organization
<b>FFEM</b>	Fonds Français pour l'Environnement Mondial
<b>GDP</b>	Gross Domestic Product
<b>GEF SGP</b>	Global Environment Facility - Small Grants Programme
<b>GES</b>	Good Environmental Status
<b>GFCM</b>	General Fisheries Commission for the Mediterranean
<b>GMP</b>	Gross Marine Product
<b>GVA</b>	Gross Value Added
<b>GW</b>	Gigawatt
<b>HNS</b>	Hazardous Noxious Substances
<b>ICMA</b>	International Capital Markets Association
<b>IFC</b>	International Finance Corporation
<b>IFD</b>	Instituição Financeira de Desenvolvimento
<b>IMC</b>	Intermediterranean Commission
<b>IMO</b>	International Maritime Organisation
<b>IMTA</b>	integrated multi-trophic aquaculture

<b>INDT</b>	Intended Nationally Determined Contributions
<b>IOG</b>	International Organisations
<b>IPA</b>	Instrument for PreAccession (European Union)
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>ITA</b>	International Tourist Arrivals
<b>IUCN</b>	International Union for Conservation of Nature
<b>IWRM</b>	Integrated Water Resources Management
<b>JPI</b>	Joint Programming Initiative Healthy and Productive Seas and Oceans
<b>LOCATIONS-</b>	Low Carbon Transport in Cruise Destination Cities
<b>MAP</b>	Mediterranean Action Plan
<b>MCDS</b>	Mediterranean Commission on Sustainable Development
<b>MDB</b>	Multilateral Development Banks
<b>MEA</b>	Multilateral Environmental Agreement
<b>MedBESP</b>	Blue Economy Stakeholder Platform
<b>MedCGFF</b>	Mediterranean Coast Guard Functions Forum
<b>MedECC</b>	Mediterranean Experts on Climate and Environmental Change
<b>MEDENER</b>	Mediterranean Association of National Energy Management Agencies
<b>MedFund</b>	Environmental Fund for Mediterranean Marine Protected Areas
<b>MediTour</b>	Mediterranean Tourism Forum
<b>MedReg</b>	Mediterranean Energy Regulators platform
<b>MedWet</b>	Mediterranean Wetlands
<b>MENA</b>	Middle East and North Africa
<b>MSP</b>	Maritime Spatial Planning
<b>MSSD</b>	Mediterranean Strategy for Sustainable Development
<b>MUR</b>	Ministry of University and Research
<b>NAPAs</b>	National Adaptation Programmes of Action
<b>NCA</b>	Natural Capital Accounting Systems
<b>NDCs</b>	Nationally Determined Contributions
<b>NDICI</b>	Neighbourhood, Development and International Cooperation Instrument
<b>NGO</b>	Non-Governmental Organization
<b>NMCs</b>	Northern Mediterranean Countries
<b>OCEaN</b>	Offshore Coalition for Energy and Nature
<b>OECD</b>	Organisation for Economic Development and Cooperation

<b>OME</b>	Mediterranean Energy Observatory
<b>PACA</b>	Région Provence Alpes- Côtes d'Azur
<b>POP</b>	Persistent Organic Pollutant
<b>PRIMA</b>	Partnership for Research and Innovation in the Mediterranean Area
<b>RAS</b>	Recirculating Aquaculture Systems
<b>RCREEE</b>	Regional Centre for Renewable Energy and Energy Efficiency
<b>REMPEC</b>	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
<b>RRP</b>	Recovery and Resilience Plan
<b>RTAP</b>	Regional Transport Action Plan for the Mediterranean
<b>SBEP</b>	Sustainable Blue Economy Partnership
<b>SDG</b>	Sustainable Development Goal
<b>SEA</b>	Strategic Environment Assessment
<b>SEMC</b>	Southern and Eastern Mediterranean Countries
<b>SEMED</b>	Startup Europe Mediterranean
<b>SIDA</b>	Swedish International Development Cooperation Agency
<b>SIDS</b>	Small Island Developing States
<b>SIMWESTMED</b>	Supporting Implementation of Maritime Spatial Planning in the Western Mediterranean region
<b>SME</b>	Small and Medium-Sized enterprise
<b>SPAMI</b>	Specially Protected Areas of Mediterranean Importance
<b>SPA</b>	Specially Protected Area
<b>SRIA</b>	Strategic Research and Innovation Agenda
<b>SSE</b>	Social and Solidarity Economy
<b>SUP</b>	Single-Use Plastics Directive (European Commission)
<b>SUPREME</b>	Supporting Maritime Spatial Planning in the Eastern Mediterranean project
<b>TEN-T</b>	Trans-European Transport Network (European Commission)
<b>UfM</b>	Union for the Mediterranean
<b>UN</b>	United Nations
<b>UNDESA</b>	United Nations Department of Economic and Social Affairs
<b>UNDP</b>	United Nations Development Programme
<b>UNECA</b>	United Nations Economic Commission for Africa
<b>UNEP</b>	United Nations Environment Programme
<b>UNEP-FI</b>	UN Environment Programme Finance Initiative
<b>UNESCO</b>	UN Educational, Scientific and Cultural Organization

<b>UNFCCC</b>	UN Framework Convention on Climate Change
<b>UNFSA</b>	UN Fish Stocks Agreement
<b>UNGC</b>	United Nations Global Compact
<b>UNIMED</b>	Mediterranean Universities Union
<b>USD</b>	United States Dollars
<b>VAT</b>	Value Added Tax
<b>WBG</b>	World Bank Group
<b>WES</b>	Water and Environment Support
<b>WestMED</b>	Western Mediterranean Blue Economy Initiative
<b>WWF</b>	World Wildlife Fund

# **Executive summary**

Over the last decades, economic activities based on coastal and marine ecosystems have been on the rise in the Mediterranean region. The Blue Economy serves as a crucial driver for economic growth and job creation but can also play a vital role in ensuring food security and facilitating the transition towards a resource-efficient, low-carbon, circular, and sustainable economy in alignment with the United Nations (UN) 2030 Agenda and its Goal 14.

The report *“A Sustainable Blue Economy for the Mediterranean: Challenges, Opportunities, and Policy Assessment”* offers a comprehensive analysis of the current state of the Blue Economy in the Mediterranean, along with policy recommendations to address existing gaps and capitalise on available opportunities. The report includes quantitative analysis based on the latest data, assessing the socioeconomic impact of activities in various Blue Economy sectors within the region. These sectors encompass coastal and maritime tourism, marine renewable energies, fisheries and aquaculture, marine transport and ports, among others. Additionally, it identifies several national and international Blue Economy strategies, practices, and examples that can be replicated in the Mediterranean region to promote a sustainable Blue Economy. Drawing from an analysis of the current challenges and prospects in advancing a sustainable Blue Economy, this report provides policy recommendations to steer the sector towards a future that prioritises environmental and social sustainability and resilience.

### **Status and Challenges of the Mediterranean Blue Economy**

While there is no internationally accepted definition, the concept of the Blue Economy is associated with economic activ-

ities that depend on the sea, with a focus on the sustainability of the maritime environment and its long-term development. The Blue Economy in the Mediterranean serves as a pivotal driver of economic development, with an estimated value of USD 5.6 trillion and an annual economic value of USD 450 billion in 2017. While transport, fisheries and tourism account for the largest share of the market, notable developments are rapidly unfolding within the energy sector and aquaculture.

However, this remarkable economic potential faces a significant threat derived from climate change. The Mediterranean region is warming 20% faster than the rest of the world and has been labelled as a climate ‘hotspot’. Challenges faced by the region include ocean warming and acidification, extreme weather events, sea level rise, and loss of biodiversity. Although climate change affects every Mediterranean country, it does so differently. The capacity and resources to address the impacts of environmental and socioeconomic shocks in the Blue Economy sectors also vary from one country to another. Consequently, sub-regional differences exist in the Mediterranean Basin regarding countries’ capacities to deal with climate change consequences. While efforts are being made through intergovernmental frameworks, sub-regional initiatives and knowledge exchange platforms, enhancing the resilience and sustainability of the Blue Economy requires greater cooperation and tailor-made solutions.

### **Opportunities and Policy Recommendations**

Addressing these challenges and ensuring the resilience of the Mediterranean Blue Economy necessitates a concerted effort. The following ten policy recommendations offer a strategic framework



for enhancing a sustainable Blue Economy in the region:

1. **Define a Sustainable Blue Economy:** Develop a universally accepted definition of the sustainable Blue Economy that includes core principles and shared guidelines for implementation, providing a common foundation for development efforts.
2. **Address Skills and Labour Gaps:** Design and implement mechanisms to align educational offerings with the evolving needs of Blue Economy sectors; encourage upskilling programmes while simultaneously promoting collaboration between education institutions and industry stakeholders.
3. **Foster Knowledge Production:** Invest in knowledge platforms, data analytics, and research capabilities to facilitate informed policy decisions, and establish mechanisms for identifying and tracking key indicators of marine resource health and Blue Economy sustainability.
4. **Remove Gender Barriers:** Address gender disparities within the Blue Economy through gender-sensitive policies that prioritise skills development, leadership training, access to technology, and financial support for grassroots women's organisations.
5. **Update National Strategies:** Encourage Mediterranean countries to align their national sustainable development strategies with Blue Economy principles and develop comprehensive strategies that encompass key sectors and promote economic and environmental sustainability.
6. **Enhance Intergovernmental Cooperation:** Foster dialogue, coordination and strategic partnerships among Mediterranean countries to enhance cooperation while encouraging public-private collaboration to foster investments in innovative solutions.
7. **Strengthen Regional Collaboration:** Promote regional projects and regulatory frameworks, with a particular focus on the Southern Mediterranean region, where the Blue Economy has significant growth potential.
8. **Implement Adaptation Policies:** Invest in infrastructure and adaptation measures to enhance resilience against climate change-related impacts. These should include early warning systems, disaster insurance, and the protection of natural ecosystems.
9. **Promote Private Sector Awareness and Capacity-Building:** Establish common standards that prioritise the sustainable use of marine resources over short-term profit, thereby increasing awareness and encouraging responsible business practices aligned with Blue Economy principles.
10. **Eliminate Financial Gaps:** Reduce the existing financial divide between Northern and Southern Mediterranean countries through innovative financial mechanisms, such as the BlueInvestInitiative, while also encouraging the mobilisation of private capital through blue bonds.

Despite the considerable challenges and gaps, significant opportunities exist to enhance a sustainable Blue Economy in the Mediterranean. Post-pandemic recovery plans offer a unique chance to prioritise

sustainability, benefiting from increased digitalisation, growing citizens' awareness, and innovation in emerging sectors. These opportunities, combined with the implementation of the recommended policies, can unlock the full potential of a sustainable Blue Economy in the Mediterranean region.

# Introduction

This report, commissioned by the **European Commission (EC)** (DG Near) to the **EuroMeSCo** network, and developed by eco-union under the supervision of the **European Institute of the Mediterranean (IEMed)**, aims to assess the status and potential of the sustainable Blue Economy in the Mediterranean region, including an analysis of socioeconomic benefits and impacts in relevant Blue Economy activities.

To do so, the first chapter reviews the different **Blue Economy approaches** promoted by researchers and policy-makers, as there is currently no one single definition of this concept, and several institutional frameworks co-exist and sometimes compete in various (geo)political arenas.

The second chapter is a general overview of the **state of the Blue Economy in the Mediterranean**, with an analysis on how the “sustainable” Blue Economy is being promoted and implemented in a selection of Mediterranean countries. The different **shortcomings and opportunities** of the Blue Economy approach in the Mediterranean region are also discussed.

The third chapter details the **quantitative and qualitative socioeconomic bene-**

**fits and impacts** of the different **Blue Economy sectors** in the Mediterranean region, identifying relevant initiatives developed at regional or sub-regional level, when data is available (which is rarely the case in non-EU countries).

The fourth chapter highlights the **regional specificities, governance and cooperation mechanisms** in place in the Mediterranean region that could support or hinder the development of a sustainable Blue Economy.

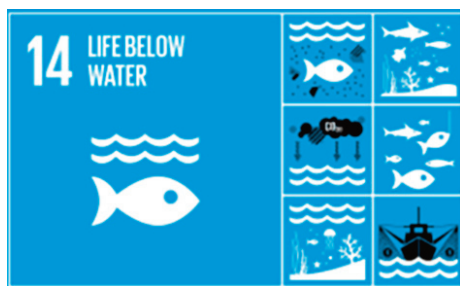
The fifth and final chapter highlights the main **policy challenges and recommendations** to promote a more sustainable Blue Economy in the Mediterranean region that contributes to socioeconomic well-being while protecting natural resources.

It should be noted that this report is based mainly on secondary sources, grey and academic literature, and in particular from the annual State of Blue Economy reports released by the **EC** and the Blue Economy roadmap from the **Union for the Mediterranean (UfM)** that provide much of the data and information used in this report.

# **The Blue Economy concepts and frameworks**

The 2030 Sustainable Development Agenda<sup>1</sup> shows how human societies depend heavily on healthy ecosystems and their resources to sustain themselves, as nature is the essential source of energy, food, water, raw material and clean air. In recent years, different concepts which interlink economic and natural resources have become common in order to address the environmental challenges and to develop a sustainable socioeconomic transition. In particular Sustainable Development Goal (SDG) 14 aims to “*Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.*”<sup>2</sup>

**Figure 1.** The Global Goals



Source: UN Agenda 2030

## The emergence of the Blue Economy

Since seas and oceans have always been present in the economic activities of civilisations (through commerce, resources, transportation, etc.), different terms have been used to describe ocean economic activities. The term Blue Economy, or sustainable ocean-based economy,<sup>3</sup> has gained major interest in nations internationally. It was first conceived at the 2012 Rio+20 United Nations Confer-

ence on Sustainable Development, when it was seen as the ocean branch of the Green Economy. Later on, at the 2017 UN Conference to Support the Implementation of SDG 14, a first set of voluntary commitments related to the Ocean or Blue Economy were made, including the sectors of sustainable fisheries, aquaculture, tourism, transport, renewable energy and marine biotechnology.<sup>4</sup> This growing interest focuses on traditional ocean-based economic sectors (fisheries, shipping, tourism, etc.) as well as new and innovative sectors (marine biotechnology, renewable marine energies, blue carbon sequestration), with an approach of diminishing carbon emissions and environmental impacts of these sectors. The Blue Economy has been promoted quickly both at a policy-making level as well as in the business and private sector. Nonetheless, there is still no internationally accepted definition for these concepts and diverging approaches have emerged in recent years.

## Different conceptual approaches

The terminology to refer to the economic activities in coastal and marine ecosystems has been used in different ways and meanings. While in some cases the terms aim to describe the whole of ocean-based economic activities, whether (environmentally or socially) sustainable or not, in other cases the protection of the marine ecosystems and its conservation is the main priority to achieve a sustainable development. General concerns about the Blue Economy usually rely on the generalised focus on economic growth as its main priority over social equity and environmental sustain-

<sup>1</sup> <https://sdgs.un.org>

<sup>2</sup> <https://sdgs.un.org/goals/goal14>

<sup>3</sup> UNDESA. (2021). Promotion and Strengthening of Sustainable Ocean-based Economies.

<sup>4</sup> UNDESA. (2017). Preliminary analysis of voluntary commitments. *High-Level Political Forum on Sustainable Development*.

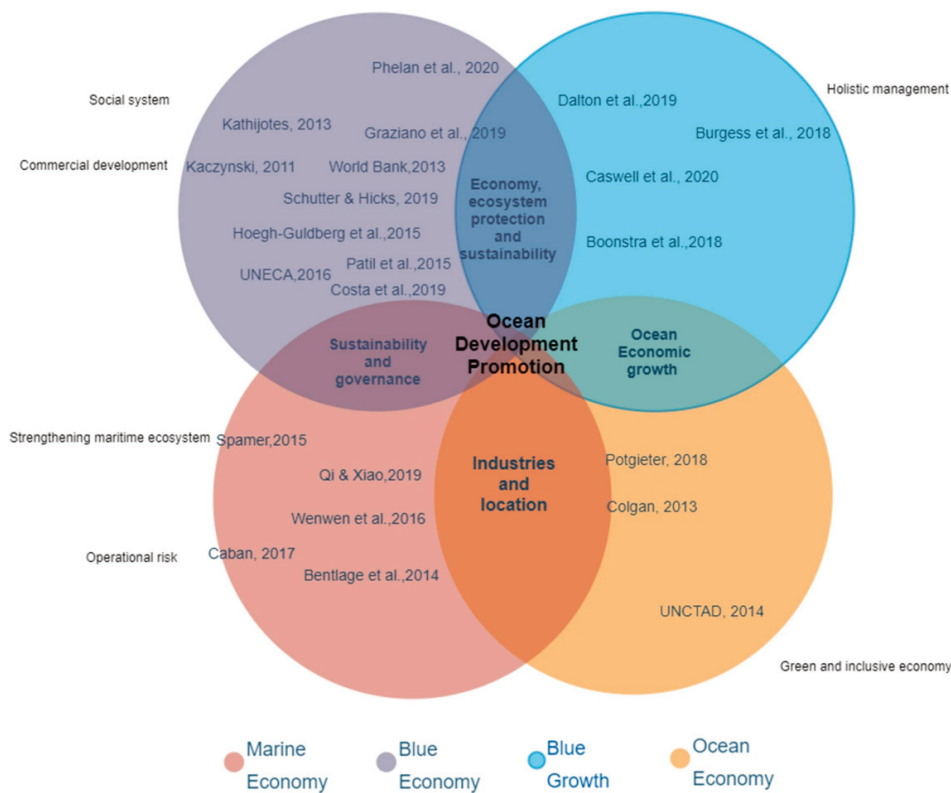
ability. Thus, an internationally accepted definition, principles and guidelines are important to lay a common path for the development of truly sustainable Blue Economy activities.

### Conceptual overview

In accordance with the United Nations Department of Economic and Social

Affairs (UNDESA),<sup>5</sup> several recent reports have shown that the concept of the Blue Economy intends to advance in the compatibility between ocean health and economic development. Some of the most used terms in this field are the Marine Economy, Blue Economy, Ocean Economy, Blue Growth, Circular Economy and Green Economy.

**Figure 2.** Comparative analysis between Marine Economy, Blue Economy, Blue Growth and Ocean Economy



Source: Martínez-Vázquez, R.M., Milán-García, J. & de Pablo Valenciano, J. (2021)

This bibliometric analysis of the Marine Economy, Blue Economy, Blue Growth and Ocean Economy terms shows the common elements but also the differences between the different ap-

proaches. However, this assessment remains mainly academic and is not based on the institutional frameworks and current policies promoted by the field stakeholders.

<sup>5</sup> UNDESA. (2021). Promotion and Strengthening of Sustainable Ocean-based Economies.

## Marine Economy

The Marine Economy was the concept first used in 1979,<sup>6</sup> making reference to those economic activities that derive from the sea. More recently, according to the US National Oceanic and Atmospheric Administration,<sup>7</sup> the marine economy includes those activities that take place in maritime areas; use essential inputs from maritime areas; produce goods and services for maritime areas or occur because of proximity to coasts. In this case, the sectors that are included as part of the maritime economy are the following: tourism and recreation; fisheries; maritime transportation; power generation; research and education; national defence and public administration; shipbuilding; professional and business services; offshore oil and gas; and dredging, restoration and construction.

It should be noted that the sustainability approach is mostly related to type of risk and to marine integrated policies. Various difficulties exist when trying to quantify maritime economics, as there are different definitions and various statistical representations of the maritime sectors.

## Ocean Economy

The Organisation for Economic Development and Cooperation (OECD) has given a definition to the concept of Ocean Economy “*as the sum of the economic activities of ocean-based industries, together with the assets, goods and services provided by marine ecosystems.*”<sup>8</sup> According to the OECD, the Ocean Economy includes a range of ocean-based industries,

which can be subdivided into established and emerging industries. The established industries include capture fisheries, sea-food processing, shipping, ports, shipbuilding and repair, marine manufacturing and construction, maritime and coastal tourism, marine business services, marine R&D and education, dredging and finally offshore oil and gas (shallow water). The emerging industry is composed of marine aquaculture, deep and ultra-deep water oil and gas, offshore wind energy, ocean renewable energy, marine and seabed mining, maritime safety and surveillance, marine biotechnology, high-tech marine products and services, and others.

The Ocean Economy promoted by the OECD integrates both (environmentally) sustainable (renewable energy) and unsustainable (offshore oil and gas) economic activities. It is a source of confusion that can lead to misinterpretation of the concept of (sustainable) Blue Economy. Other authors have therefore considered the concept of Ocean Economy as “*the activities related to our economic exploitation of the maritime environment*”,<sup>9</sup> which differentiates from the term Blue Economy since “*the economic use of maritime resources and the sea often precludes a focus on a sustainable maritime environment.*”

## Green Economy

The Green Economy is defined by the United Nations Environment Programme (UNEP) as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a Green Economy can be

<sup>6</sup> Martínez-Vázquez, R.M., Milán-García, J. & de Pablo Valenciano, J. (2021).

<sup>7</sup> National Oceanic and Atmospheric Administration. (2020). *Story map: Our dynamic marine economy*.

<sup>8</sup> OECD. (2016). *The Ocean Economy in 2030*. OECD Publishing.

<sup>9</sup> Potgieter, T. (2018). Oceans economy, blue economy, and security: notes on the South African potential and developments. *Journal of Indian Ocean Region*, 14(1): 49–70.



considered as one that is low in carbon, resource efficient and socially inclusive.”<sup>10</sup> Here the concept of Green Economy also integrates the (sustainable) ocean-based (blue) economic activities. Indeed, the UNEP offers secretariat functions to a range of multilateral environmental agreements (MEAs), regional conventions and seas conventions and action plans.<sup>11</sup>

Civil Society Organizations (CSOs) such as the Green Economy Coalition have operationalised the concept of Green Economy from the perspective of the local communities, benchmarking how different national economies are enhancing the transition towards greener and fairer economies. As an example, the Green Economy Tracker reviews 21 policies across six different themes of more than 40 countries, including ocean-based (blue) economic activities.

## Circular Economy

The Circular Economy consists of an economic model which aims to achieve the elimination of waste and an efficient use of resources in economies. More specifically, the Circular Economy is defined by the Ellen McArthur Foundation as a “*systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution*”<sup>12</sup> and by the European Union (EU) as a “*model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible*.”<sup>13</sup>

Recently several initiatives applying the benefits of the Circular Economy in the

Blue Economy sectors have been launched. For example, the Blue Circular Economy project, funded by the Northern Periphery and Arctic Programme, helps small and medium-sized enterprises (SMEs) offering products and services, within fishing gear recycling solutions, to attain market reach. In the Mediterranean region, a recent report<sup>14</sup> describes the state of play in the development of the Circular Economy in selected sectors of the Blue Economy.

## Blue Economy

The term Blue Economy appears to be the most recently used.<sup>15</sup> Although different interpretations of the term have been recognised, the concept of Blue Economy mostly tends to refer to economic activities that depend on the sea, with a focus on the sustainability of the maritime environment and its long-term development. Nonetheless, various conflicts emerge from the development of Blue Economy activities since resources used are limited. Moreover, while some studies and authors promote growth and development, which could be associated with the term Blue Growth, others support the protection of ocean resources and the decoupling of economic activities from resource exploitation (blue degrowth).

In addition, some other controversies rely on the selection of sectors that are part of the Blue Economy, since in some cases industries which have a high carbon intensity or high level of resource exploitation are considered as part of the Blue Economy activities. The term Blue Economy has not

<sup>10</sup> *Green economy*. (n.d.). UNEP-UN Environment Programme.

<sup>11</sup> <https://www.unep.org/explore-topics/oceans-seas/what-we-do/regional-seas-programme>

<sup>12</sup> Circular economy introduction. (n.d.). Ellen MacArthur Foundation.

<sup>13</sup> Circular economy: definition, importance and benefits. (2015). News of the European Parliament.

<sup>14</sup> <https://switchmed.eu/news/circular-blue-economy-report/>

<sup>15</sup> Martínez-Vázquez, R.M., Milán-García, J. & de Pablo Valenciano, J. (2021).

yet been majorly adopted by all stakeholders and actors in society and it still presents several challenges at environmental, social and economic levels. Circular Economy activities can be further integrated into Blue Economy sectors, and synergies among sectors are very relevant for its development.

## Blue Growth

Blue Growth is understood as an economic strategy<sup>16</sup> that looks for the sustainable growth of marine and maritime economic sectors. It highlights the potential of seas and oceans for innovation and economic development and in its centre relies on an effective management of ocean resources. Nonetheless, the lack of agreed goals for the strategy of Blue Growth has led to discrepancies. While some authors defend the maximisation of economic growth coming from aquatic and marine resources, others aim to maximise inclusive economic growth, assessing aspects other than the economic ones.<sup>17</sup> It has been pointed out that the Blue Economy and Circular Economy are its main pillars, while the concept of Blue Growth finds its roots in that of “green growth” back in the Rio+20 Conference in 2012, when there was a realisation that a new concept was needed to emphasise the economic and social importance of ocean and inland waters.<sup>18</sup>

## Blue Degrowth

In contrast to Blue Growth, some currents defend the need to reach a bal-

anced integration between oceans and society and to find alternative options to Blue Growth, which has been the most dominant one. In this regard, Blue Degrowth, which draws from the “degrowth” movement that appeared during the 1970s, criticises growth imperative strategies in relation to the seas and oceans, highlighting its injustices and negative consequences and calling for a minimised and fairly distributed resource use from the sea. Moreover, it aims to propose a framework that enhances local community participation in the management of marine areas instead of exploitation, extraction and production guided by capitalist policies.<sup>19</sup> The nine principles proposed for Economic Degrowth are the following:<sup>20</sup> end exploitation; direct democracy; localised production; sharing and reclaiming the commons; a focus on relationships; economic surplus applied to collective meaning; care; diversity; de-commodification of land and seas. Other ideas that are part of the degrowth movement are overcoming the primacy of development based on economic growth.

## Blue Doughnut

Doughnut economics is a concept that proposes to transform the economy to meet the needs of all people within the means of the living planet. It aims to change the objective from limitless economic gross domestic product (GDP) and growth and it recognises the interdependency of the economy with society and

<sup>16</sup> European Commission. (n.d.). *Smart Specialisation Platform: Blue Growth*.

<sup>17</sup> Martínez-Vázquez, R.M., Milán-García, J. & de Pablo Valenciano, J. (2021).

<sup>18</sup> A.M. Eikeset et al. (2018). What is blue growth? The semantics of “Sustainable Development” of marine environments.

<sup>19</sup> Ertör, I., Hadjimichael, M. (2020). Blue degrowth and the politics of the sea: rethinking the Blue Economy. *Sustain Sci*, 15: 1–10.

<sup>20</sup> Kallis G, March H. (2015). Imaginaries of hope: the utopianism of degrowth. *Ann Assoc Am Geogr* 105(2): 360–368.

nature. It calls for regenerative and more distributed economies. The Doughnut concept includes two concentric rings, the social and the environment, which together offer a space which is safe and just socially and ecologically. More specifically, the concept of **Blue Doughnut** currently developed by the non-government organization (NGO) Seas At Risk consists of an alternative framework for the Blue Economy, since it is based on reversing social inequalities while not overstepping planetary boundaries.<sup>21</sup>

**Figure 3.** The Doughnut of social and planetary boundaries



Source: Doughnut Economics Action Lab. (n.d.). About Doughnut Economics.

## Institutional approaches and frameworks

Although there is no universally accepted definition of the term Blue Economy, the internationally most used ones<sup>22</sup> encompass all the coastal and marine ac-

tivities with a triple perspective that ensures protection of the ocean's ecosystems, social well-being and economic prosperity. The interests in developing new sectors based on ocean activities are focused both on the traditional ones such as maritime tourism, shipping or fisheries and in developing new ones like renewable marine energies, marine biotechnology or blue carbon sequestration.

## United Nations

According to the Intergovernmental Oceanographic Commission (IOC/UNESCO), the Blue Economy is "*a lens by which to view and develop policy agendas that simultaneously enhance ocean health and economic growth, in a manner consistent with principles of social equity and inclusion.*"<sup>23</sup> It points out as well that a sustainable Ocean Economy "*emerges when economic activity is in balance with the long-term capacity of ocean ecosystems to support ecosystems and remain resilient and healthy.*" Therefore, the Blue Economy consists of the sustainable development of maritime activities, by ensuring environmental sustainability of oceans and seas while promoting social inclusion, economic growth and the improvement of livelihoods. An important aspect is the decoupling of socioeconomic advancement from environmental degradation.<sup>24</sup> To do so, Ecosystem-Based Management (EBM) approaches are key to achieve ecological, social and economic objectives.

Additionally, the United Nations Department of Economic and Social Affairs (UN

<sup>21</sup> Doughnut Economics Action Lab. (n.d.). *Turning the ideas of Doughnut Economics into action.*

<sup>22</sup> *Blue Economy Definitions* (n.d.). United Nations.

<sup>23</sup> Sustainable Blue Economy. (2020). Intergovernmental Oceanic Commission, UNESCO.

<sup>24</sup> Blue Economy. (n.d.). Intergovernmental Oceanic Commission, UNESCO.

DESA)<sup>25</sup> understands the Blue Economy as *"the range of economic sectors and related policies that together determine whether the use of oceanic resources is sustainable."* Moreover, the UN highlights that the Blue Economy should *"promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas."*<sup>26</sup>

The United Nations Development Programme (UNDP) defined the Blue Economy as "the sustainable use of ocean resources for economic growth, jobs, and social and financial inclusion, with a focus on the preservation as well as restoration of the health of ocean ecosystems." It also points out that the concept of "Blue Economy emphasizes equity and takes into account the health of the ocean, as it strives to balance three dimensions of sustainable development: economic, social and environmental."<sup>27</sup> The UNDP interpretation of the Blue Economy promotes sustainable growth, in a manner that minimises the degradation of the environment and a sustainable use of resources. It notes that the Blue Economy moves from the business as usual models to a sustainable development framework, where ocean health is key.

The UN Environment Programme (UNEP) points out that sectors that are interlinked with the marine and coastal environment, defined as *"the blue world"*, must transition into a Green Economy, as seas and oceans are a key part of the glo-

bal transition towards a low carbon, resource-efficient Green Economy.<sup>28</sup>

**Figure 4.** The principles of the Blue Economy



Source: UNDP. (2023). Action Brief: An Ocean of Opportunities.

The Nairobi Statement on Advancing the Global Sustainable Blue Economy<sup>29</sup> (Sustainable Blue Economy Conference, Kenya, UNECA, 2018) contributed to a common understanding of the concept. It notes that the concept of sustainable Blue Economy *"predicates on the conceptual pillars of productivity, inclusivity and sustainability of water-based and water-related resources."* Moreover, it calls on the mobilisation of financial resources, capacity-building and technology deployment; a governance that promotes sustainability (social, economic and environmental) and research and education programmes. It also promotes economic activities consistent with the long-term capacity of marine and water ecosystems; data and science to inform

<sup>25</sup> UNDESA. (2021). *Promotion and Strengthening of Sustainable Ocean-based Economies*.

<sup>26</sup> UNDESA News. (2019). *Diving into the Blue Economy*.

<sup>27</sup> UNDP. (2023). *Action Brief: An Ocean of Opportunities - How the Blue Economy Can Transform Sustainable Development in Small Islands Developing States*.

<sup>28</sup> UNEP, FAO, IMO, UNDP, IUCN, WorldFish Center, GRID-Arendal. (2012). *Green Economy in a Blue World*.

<sup>29</sup> Sustainable Blue Economy Conference, UNECA. (2018). *The Nairobi Statement of Intent on Advancing the Global Sustainable Blue Economy*.

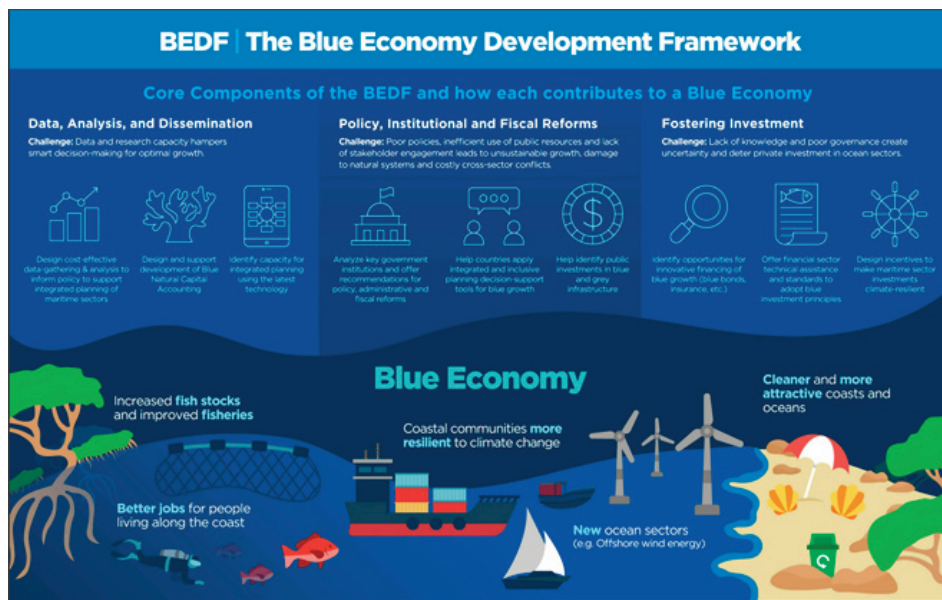
policy-making and decisions; stakeholder collaboration for the conservation of resources; corporate responsibility; value of market and non-market goods and services of the Blue Economy; finance for Blue Economy activities; Blue Economy SMEs support; and creating markets for innovative industries.

## World Bank

According to the World Bank, the Blue Economy<sup>30</sup> is the “*sustainable use of ocean resources for economic growth, improved livelihoods and jobs while preserving the health of the ocean ecosystem.*” The World Bank has a specific

multi-donor global trust fund named **PROBLUE**, which supports the sustainable development of marine and coastal spaces and resources around the world. The World Bank Blue Economy Development Framework (BEDF)<sup>31</sup> consists of a set of tools and technical assistance for the definition of national roadmaps towards a sustainable and diversified Blue Economy. The main elements that constitute the framework are the development of data and analysis systems for better policy-making; the strengthening of policies, institutions and fiscal policy; and, finally, the promotion of targeted and sustainable investment.

**Figure 5.** The Blue Economy Development Framework



Source: PROBLUE, World Bank, European Commission. (2021). The Blue Economy Development Framework.

In Small Island Developing States the UN Department of Social Affairs (SIDS),<sup>32</sup> the World Bank, supported by (DESA), states that the Blue Economy

<sup>30</sup> World Bank. (n.d.). *MENA Blue Programme*.

<sup>31</sup> PROBLUE, World Bank, European Commission. (2021). *The Blue Economy Development Framework*.

<sup>32</sup> World Bank, United Nations Department of Economic and Social Affairs. (2017). *The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries*.

“seeks to promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas. At its core it refers to the decoupling of socioeconomic development through oceans-related sectors and activities from environmental and ecosystems degradation.” Nonetheless, the mentioned definition of the Blue Economy includes a range of sectors, from living resources of the oceans to non-living and non-renewable resources such as extractive industries like offshore oil and gas, seabed mining and dredging.

According to the World Bank, the **following sectors and activities are part of the Blue Economy:**

#### 1. Harvesting and trade of marine living resources:

- Seafood harvesting (fisheries, secondary fisheries and related activities, trade of seafood products, trade of non-edible seafood products, aquaculture)
- Use of marine living resources for pharmaceutical products and chemical applications (marine biotechnology and bioprospecting)

#### 2. Extraction and use of marine non-living resources (non-renewable):

- Extraction of minerals (seabed mining)
- Extraction of non-renewable energy sources (oil and gas)
- Freshwater generation (desalination)

#### 3. Use of renewable non-exhaustible natural forces (wind, wave, and tidal energy)

- Generation of off-shore renewable energy

#### 4. Commerce and trade in and around the oceans:

- Transport and trade (shipping and shipbuilding, maritime transport, ports and related services)
- Coastal development (national planning ministries and departments, private sector)
- Tourism and recreation (national tourism authorities, private sector, other relevant sectors)

#### 5. Indirect contribution to economic activities and environments:

- Carbon sequestration (blue carbon)
- Coastal protection (habitat protection, restoration)
- Waste disposal for land-based industry (assimilation of nutrients, solid waste)
- Existence of biodiversity (protection of species and habitats)

### Principles for a sustainable Blue Economy (WWF)

The World Wide Fund for Nature (WWF) has promoted the principles for a sustainable Blue Economy<sup>33</sup> to provide common understanding guidelines about what characterises a sustainable Blue Economy. It is defined as *“a marine-based economy that provides social and economic benefits for current and future generations; restores, protects and maintains the diversity, productivity, resilience, core functions, and intrinsic value of marine ecosystems; and is based on clean technologies, renewable energy, and circular material flows.”* The definition also highlights the fact that long-term prosperity can only be achieved through a Circular Economy.

<sup>33</sup> World Wide Fund for Nature. (2015). Principles for a Sustainable Blue Economy.

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### Box 1: The principles for the Blue Economy:

#### a- Governance principles for a sustainable Blue Economy

<b>Inclusive</b>	Active participation of stakeholders.
<b>Well-informed, precautionary and adaptive</b>	Decisions based on scientifically sound information and precautionary approach when knowledge and information are missing to avoid harmful effects.
<b>Accountable and transparent</b>	Responsibility for impacts of own activities and transparency to other stakeholders.
<b>Holistic, cross-sectoral and long term</b>	Decisions based on assessment and accounting of social, environmental and economic costs and benefits across borders and with a long-term perspective.
<b>Innovative and proactive</b>	Innovate with effective and efficient ways of achieving long-term sustainability.

#### b-Development of a sustainable Blue Economy

<b>Set clear, measurable, and internally consistent goals and targets for a Sustainable Blue Economy.</b>	Integrated and coherent goals and targets so that planning, management and activities have a clear direction.
<b>Assess and communicate their performance on these goals and targets.</b>	Regular monitoring and communication.
<b>Create a level economic and legislative playing field that provides adequate incentives and rules.</b>	Economic instruments and national and international laws.
<b>Plan, manage and effectively govern the use of marine space and resources, applying inclusive methods and the ecosystem approach</b>	Uses should be forward-looking, precautionary, adaptive and integrated.
<b>Develop and apply standards, guidelines and best practices that support a sustainable Blue Economy.</b>	Application of global sustainability standards, guidelines and best practices.
<b>Recognise that the maritime and land-based economies are interlinked and that many of the threats facing marine environments originate on land.</b>	Address impacts to marine ecosystems.
<b>Actively cooperate, sharing information, knowledge, best practices, lessons learned, perspectives, and ideas</b>	Participation of actors in implementation processes.

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### European Commission

The EC published a communication<sup>34</sup> in 2021 that aim to transition from “Blue Growth” towards a “sustainable Blue Economy”. It recognises the importance of the Blue Economy in the EU due to its large variety of activities in all the economic sectors related to coasts, seas and oceans, both in the marine environment and on land. The communication also emphasises the value of European oceans and seas in restoring nature and achieving climate neutrality,

and it proposes a marine set of policies and strategies for the next decade. This new approach “encompasses all industries and sectors related to oceans, seas and coasts, whether they are based in the marine environment (e.g., shipping, fisheries, energy generation) or on land (e.g., ports, shipyards, land-based aquaculture and algae production, coastal tourism).”<sup>35</sup> The EC remarks that a sustainable Blue Economy is essential to achieve the objectives of the European Green Deal and a green recovery.

Figure 6. Sectors of the Blue Economy in the European Union



Source: European Commission. (2021). Sustainability criteria for the Blue Economy<sup>36</sup>.

The EC also launched the EU Mission “Restore our Ocean and Waters” to protect and restore the health of oceans and ecosystems by supporting regional action and cooperation through area-based “lighthouses” sea or river basins. It rec-

ognises that the approach must be extended beyond the EU borders and green and blue policies need to be connected and tackled jointly with the maritime stakeholders and other EU institutions.

<sup>34</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU.*

<sup>35</sup> European Commission. (2021). *Sustainable Blue Economy: Questions and Answers.*

<sup>36</sup> <https://op.europa.eu/en/publication-detail/-/publication/893c5ae2-a63a-11eb-9585-01aa75ed71a1>



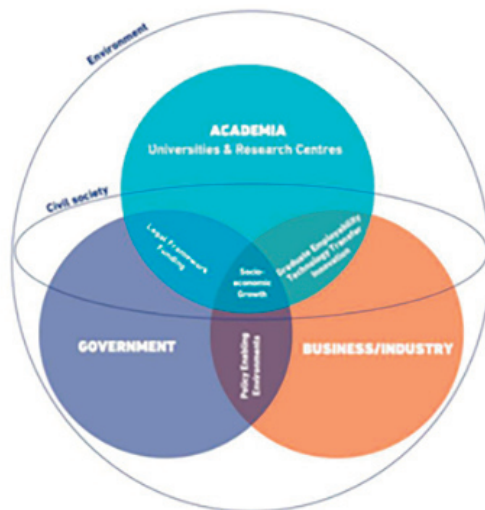
## Union for the Mediterranean

The UfM defines<sup>37</sup> the Blue Economy as *“the set of human activities depending on the sea and/or underpinned by land-sea interactions in the context of sustainable development, and notably including industrial and service sectors such as aquaculture, fisheries, blue biotechnologies, coastal and maritime tourism, shipping, ship-building/repair, ports, ocean energy and marine renewable energy, including offshore wind,*

*which are among the main traditional and emerging economic maritime sectors in the Mediterranean Sea basin.”*

The concept of the Blue Economy acknowledges that its activities depend on the status of ecological systems and the underlying risks of Blue Economy activities to degrade these ecosystems. The UfM is also promoting the Quintuple helix<sup>38</sup> to involve all stakeholders (academia, business, government, civil society) in the future of the Blue Economy.

**Figure 7.** Sectors of the Blue Economy in the European Union



Source: UfM. (2021). Towards a sustainable Blue Economy in the Mediterranean

The UfM also launched the Mediterranean Blue Economy Stakeholder Platform as a regional platform for knowledge sharing that seeks to improve maritime governance and develop a Blue Economy in the Mediterranean. It also aims to provide a framework for policies and to enhance cooperation and capacity-building across sectors at a regional, sub-regional and national level.<sup>39</sup>

## United Nations Economic Commission for Africa (UNECA)

The United Nations Economic Commission for Africa (UNECA) considers that the Blue Economy in the African context covers various water bodies (underground water, oceans, seas, coasts, lakes, rivers) and includes the conser-

<sup>37</sup> Union for the Mediterranean. (2015). *Ministerial Conference on Blue Economy*.

<sup>38</sup> UfM. (2019). UfM Seminar on blue skills, careers, jobs.

<sup>39</sup> Mediterranean Blue Economy Stakeholders Platform – Union for the Mediterranean. (n.d.). Blue Economy.

vation of aquatic ecosystems and a variety of activities. This Blue Economy approach<sup>40</sup> provides a framework that promotes synergies across sectors and levels of intervention (local, national, sub-

regional, regional, international, etc.). It has an ecosystem-based approach where environmental, social and economic sustainability are integrated into all Blue Economy sectors.

**Figure 8.** Tools, concepts and pillars of the Blue Economy



Source: United Nations. Economic Commission for Africa (2016). *Africa's Blue Economy: a policy handbook*.

In order to ensure that environmental considerations are included in Blue Economy governance and planification, Strategic Environment Assessments (SEAs) and Environmental Impact Assessments (EIAs) should be undertaken at policy and activity levels. Moreover, cooperation to develop blue carbon natural infrastructure and effectively manage Marine Protected Areas (MPAs) should be enhanced as well as legislation and policies for green and blue technologies. Other tools and frameworks that can be further incorporated are Natural Capital Accounting (NCA) systems and struc-

tures for the revision of National Adaptation Programmes of Action (NAPAs).

### African Union

In order to guide the development of an inclusive and sustainable Blue Economy and to effectively deliver economic growth and wealth to the continent, the African Union defined in 2019 the African Blue Economy Strategy (ABES),<sup>41</sup> in line with the framework established in the 2018 Nairobi Sustainable Blue Economy Conference. According to this strategy, the African Blue Economy, estimated at

<sup>40</sup> United Nations Economic Commission for Africa (2016). *Africa's Blue Economy: a policy handbook*.

<sup>41</sup> Failler, P., Ndende, M., Karani, P., Gilau, A. M., Hamukuaya, H., & Diop, S. (2020). *Africa Blue Economy Strategy – Blue Governance Framework*. The African Union Inter-African Bureau for Animal Resources.

USD 296 billion and 49 million jobs, must follow three principles and focus on five critical vectors:

### Principles of the African Blue Economy Strategy:

- Circular Economy
- Environmental and social sustainability
- Empowerment and inclusive decision-making

### Vectors of the African Blue Economy Strategy:

- Fisheries, aquaculture and ecosystems conservation
- Shipping, transportation and trade
- Sustainable energy, extractive minerals, gas, innovative industries
- Environmental sustainability, climate change and coastal infrastructure
- Governance, institutions and social actions

The ABES sets objectives and concrete intervention actions to tackle some of the most pressing challenges in the African Blue Economy, both strategic (blue governance, poverty eradication, food security and climate change) and technical (accurate assessment of the potential of the Blue Economy, data collection, better coordination in Marine Spatial Planning, developing an integrated approach to marine ecosystems

with diverse indicators, and integrated maritime surveillance for safety and security).

### Other approaches

Some authors emphasise the fact that what really characterises the Blue Economy is that it embraces economic, social and environmental areas,<sup>42</sup> in accordance with the three pillars of the SDGs. A sustainable Blue Economy should then incorporate these three main aspects:

**Social equity** (human rights, gender equality, economic equity, etc.)

**Environmental sustainability** (biodiversity, water quality, habitat, resources, etc.)

**Economic viability** (infrastructure, investment risk, national stability, etc.)

For Small and Island Developing States (SIDS), “an equitable and sustainable blue economy”<sup>43</sup> has to be adapted to local culture to ensure social equity and appropriate opportunities. However, tensions arise between different interested actors since there are various approaches to how sustainable development should be framed. Regions have different capacities to achieve a sustainable Blue Economy, which depend not only on natural resources but also on other socioeconomic and political factors, ranging from the level of infrastructure to national security and stability.

Other concepts have arisen, such as the New Blue Economy, which differentiates

<sup>42</sup> Andrew D. L. Steven, Mathew A. Vanderklift & Narnia Bohler-Muller. (2019). A new narrative for the Blue Economy and Blue Carbon. *Journal of the Indian Ocean Region*, 15:2: 123–128.

<sup>43</sup> Cisneros-Montemayor, A.M., Moreno-Báez, M., Reygondeau, G. (2021). Enabling conditions for an equitable and sustainable blue economy. *Nature*, 591: 396–401.

from the traditional since it is based on the collection, analysis and dissemination of oceans and coastal data for addressing societal challenges and developing an integrated approach for the Blue Economy.<sup>44</sup>

<sup>44</sup> Integrated Ocean Observing System. (n.d.). *New Blue Economy*.

# **The Blue Economy in the Mediterranean**

The Mediterranean territory covers 46,000 km of coastline and an area of 2.5 million km<sup>2</sup>. It represents only 1.5% of the planet's surface but it contains very rich ecosystems and biodiversity. The Mediterranean Sea is the linkage point between Asia, North Africa and Europe, with a population of 150 million on its coasts.<sup>45</sup> Throughout history, it has been a key source of economic development of coastal regions and communities. One third of the Mediterranean population lives in the coastal area and more than 70% in cities.<sup>46</sup> This shows just how relevant urban and economic development is in coastal areas in the Mediterranean. Countries and regions are interconnected through commerce, investment, information, flows of people and marine and environmental resources such as rivers.

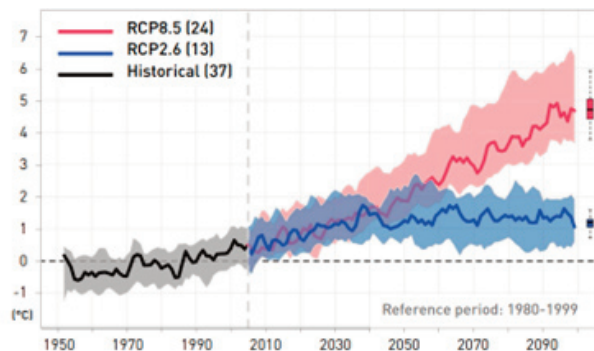
## Climate change and the Blue Economy

The Mediterranean region is very vulner-

able to climate change and is considered a climate 'hotspot' in the world. According to the Mediterranean Experts on Climate and Environmental Change (MedECC), the region is expected to remain as one of the most affected by climate change in the world, highly affected by the hydrological cycle and precipitation.<sup>47</sup> The region is warming 20% faster than the rest of the world, with annual temperatures now 1.54°C above pre-industrial levels, which is 0.4 °C higher than the global average. With current policies, temperatures are expected to increase up to 2.2°C by 2040.

The graph below shows how land temperatures are projected to change in relation to the reference period of 1980-1999. Warming will likely be in the range of 0.9 to 1.5°C (RCP2.6, for a low greenhouse gas emissions trajectory) or 3.7 to 5.6°C (RCP8.5, for a high greenhouse gas emissions trajectory) during the 21st century.<sup>48</sup>

**Figure 9.** Graph: Mean annual temperatures anomalies in Mediterranean land



Source: MedECC. (2020). Climate and Environmental Change in the Mediterranean Basin. First Mediterranean Assessment Report.

<sup>45</sup> Union for the Mediterranean. (2016). *Key players' perspective on climate change in the Mediterranean*.

<sup>46</sup> UNEP/MAP and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean*.

<sup>47</sup> MedECC. (2020). *Climate and Environmental Change in the Mediterranean Basin. First Mediterranean Assessment Report*.

<sup>48</sup> In climate modelling, RCPs or Representative Concentration Pathways are greenhouse gas atmospheric concentration trajectories conceived by the IPCC to describe different climate futures depending on the volume of emissions in the years to come. There are seven different pathways: RCP1.9, RCP2.6, RCP3.4, RCP4.5, RCP6, RCP7, RCP8.5.

## Impacts of climate change in the Mediterranean

In their last assessment report,<sup>49</sup> the Intergovernmental Panel on Climate Change (IPCC) foresees serious impacts in the Mediterranean region due to climate change: sea level rise, seawater acidification, increase in frequency of extreme events like drought, floods and heat waves, reduced precipitation or loss of biodiversity. Coastal zones in low-lying areas, which currently host 42 million people in the region, will face disaster risks such as flooding, erosion and the salinisation of river deltas and aquifers that sustain food security and livelihoods.

## Vulnerability of the Blue Economy to Climate Change

The UNEP cites eight major threats for the Mediterranean environment: climate change, population densities in coastal areas, atmospheric pollution, lack of water supply and wastewater treatment, waste and its management, fisheries practices, fossil fuels, chemical and pharmaceutical products.<sup>50</sup> The Mediterranean Blue Economy is therefore highly vulnerable to the impacts of climate change because its main economic sectors are highly interconnected with climate risks. Ocean warming and acidification will impact marine ecosystems and fisheries, with greater impacts in the Western Mediterranean Sea basin. As for the maritime transport and

trade industry, this sector will have to deal with risks from storm surges and sea level rise that may disrupt port operations. Coastal and marine tourism is also highly dependent on the quality of coastal and marine ecosystems to attract visitors. The tourism industry will also suffer greatly from climatic discomfort and water scarcity, particularly during summer, and sea level rise will contribute to beach erosion and coastal degradation. This will translate into economic losses to the tourism sector from cancellations.<sup>51</sup>

## Overview of the Mediterranean economy

The Mediterranean economic context presents a high dependency on imports, substantially from which fossil fuels and cereals, and its economies are interdependent. While industry and agriculture are still important economic sectors, many countries have switched to services during the last decades, especially in the EU, accounting in some cases for around half of the GDP. For example, in EU Mediterranean countries the share of agriculture in GDP in 2017 was between 1 and 3.5%, decreasing.<sup>52</sup> Mediterranean economies are also highly dependent on high-carbon emission industries, and the amount of informal employment is still significant.<sup>53</sup> Moreover, the percentage of government debt over GDP has arisen during the last decade in most Mediterranean countries.

<sup>49</sup> IPCC (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.*

<sup>50</sup> UNEP/MAP and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean.*

<sup>51</sup> Union for the Mediterranean (2018). *Climate change impact on the tourism sector in the southern Mediterranean.*

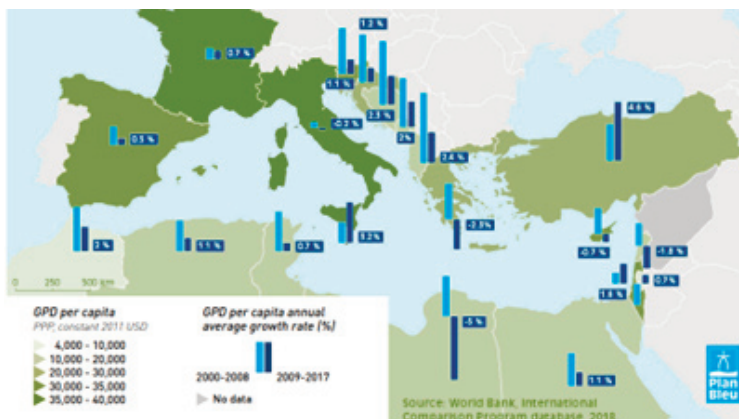
<sup>52</sup> UNEP/Mediterranean Action Plan and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean.*

<sup>53</sup> According to the International Labour Organization (ILO), informal employment is above 15% in all Mediterranean countries, (except Croatia, Cyprus, France and Malta); 60% in Albania, Egypt, Morocco, Syrian Arab Republic, Tunisia; and 80% in Morocco.

Southern Mediterranean Countries (SMCs) show a minor resilience to both internal and external shocks due to their less-diversified economic structures, budget deficits and a generalised trade deficit. GDP growth rates, as is shown in

the following image, are higher in SMCs than in the Northern Mediterranean Countries (NMCs), but there is still a gap between them since EU countries' GDP constitutes 60% of the Mediterranean region.

**Figure 10.** Gross domestic product in the Mediterranean



Source: UNEP/Mediterranean Action Plan and Plan Bleu (2020). State of the Environment and Development in the Mediterranean.

## Economic value of the Mediterranean Blue Economy

Nowadays, economic activities related to the sea are still very relevant and many opportunities arise for their further development in a sustainable manner. There are two main concepts to show the economic value of the Mediterranean sea: the Gross Marine Product (GMP), understood as “the annual economic output of all sectors related to the sea, without including shipping and oil-related industries”, and the shared wealth fund, which is “the total pro-

ductive biodiversity and ecosystem assets of the ocean, such as coastlines, fisheries and seagrass.”<sup>54</sup>

The Blue Economy in the Mediterranean has an estimated value of USD 5.6 trillion and created an annual economic value of USD 450 billion<sup>55</sup> in 2017, which represents around 20% of the world’s annual GMP. The major part comes from tourism (92%), since Mediterranean countries receive 30% of the world’s international tourists.<sup>56</sup> As for the estimated shared wealth fund, the economic assets of the Mediterranean ascend up to USD 5.6 trillion,<sup>57</sup> from which productive coastlines make

<sup>54</sup> WWF Mediterranean Marine Initiative. (2017). *Reviving the Economy of the Mediterranean Sea: Actions for a Sustainable Future*.

<sup>55</sup> WWF Mediterranean Marine Initiative. (2017). *Reviving the Economy of the Mediterranean Sea: Actions for a Sustainable Future*.

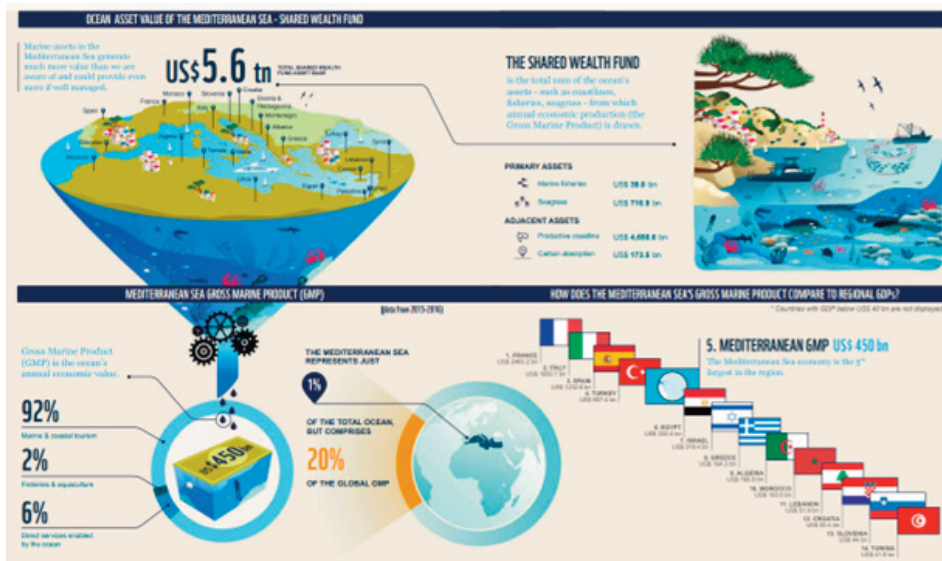
<sup>56</sup> UNEP/MAP and Plan Bleu. (2020). *State of the Environment and Development in the Mediterranean*.

<sup>57</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy*.



up the 83%, and seagrass 13%. When comparing its GDP to regional GDPs, ocean-related activities are the 5th largest economy in the Mediterranean Basin after France, Italy, Spain and Turkey.

**Figure 11.** Economic value from the Mediterranean Sea



Source: Randone, et al. (2017). Reviving the Economy of the Mediterranean Sea: Actions for a Sustainable Future. WWF

The Blue Economy is an important driver of growth and jobs in the region, as well as an important sector to ensure food security and the transition towards a resource-efficient, low-carbon, circular and sustainable economy in line with the United Nations 2030 development agenda and its Goal 14.

Additionally, the Mediterranean Strategy for Sustainable Development (2016-2025)<sup>58</sup> includes the Blue Economy as a key means to achieve development. Traditional sectors in the Blue Economy include fisheries, aquaculture, coastal tourism, transport, shipping, ports, etc. But new emerging sectors are gaining

more relevance, such as blue biotechnology, ocean energy and ship recycling.

## Non-market valuation of the Mediterranean Sea

Apart from the economic value and potential of marine activities, the Mediterranean Sea holds a huge value from its ecosystem services, its diversity and its intangible benefits.<sup>59</sup> For example, oceans produce 50% of global oxygen and absorb 30% of CO<sub>2</sub> emissions; and marine biodiversity is crucial for Blue Economy activities such as tourism, biotechnology and fisheries. A comprehensive accounting of the value of the ocean

<sup>58</sup> UNEP/MAP. (2016). *Mediterranean Strategy for Sustainable Development 2016-2025*.

<sup>59</sup> WWF Mediterranean Marine Initiative. (2017). *Reviving the Economy of the Mediterranean Sea: Actions for a Sustainable Future*.

is essential to policy-making regarding the Blue Economy, although these types of non-market assessments are not found in the marketplace. These non-market valuations are linked to recreational benefits of ocean and coastal environments, or the environmental services they supply. Still, it is possible to make estimates of non-market values through economic assessments.

## Examples of national Blue Economy strategies

Several national Blue Economy strategies in the Mediterranean have been identified as good practices from different sub-regions in the Mediterranean, which can contribute to shared knowledge and future collaboration initiatives in the Mediterranean.

### Algeria

The marine and maritime economy in Algeria employs nearly 300,000 people directly, and activities and services related to the sea and coastal areas account for roughly 20% of the country's GDP. Moreover, 7 million Algerians have a direct or indirect link with the sea for their livelihood.<sup>60</sup> With the support of the Assistance Mechanism of the WestMED initiative, Algeria has developed a Blue Economy strategy for the next 10 years. The [Algeria National Strategy for the Blue Economy](#) identifies the needs and priority actions to be implemented to achieve the development of a sustainable Marine Economy. It also includes cross-border dimensions of the Blue Economy.

### France

France has the 2nd largest maritime area in the world, with 11 million square kilo-

metres of marine space. The French Ministry for an Ecological and Solidary Transition published in 2017 a "[National Strategy for the Sea and Coast](#)" to provide a policy framework for marine and maritime issues built upon the works and research from academia, economic associations and territorial actors. This national strategy sets long-term objectives to promote the ecological transition for the sea and coastline and the development of a sustainable Blue Economy, and identifies a variety of priority actions. And in 2018, France and India signed a Memorandum of Understanding (MoU) to develop a [joint roadmap](#) to enhance cooperation on the Blue Economy and ocean governance, which was adopted in 2022.

### Israel

Due to its geography, Israel is highly dependent on the maritime space: most of its critical infrastructures are located there, 99% of goods are transported on it, and over 75% of Israel's drinking water comes from desalination plants in the sea.<sup>61</sup> The country adopted a Blue Economy strategy in 2018, in cooperation with the EU. In 2022, the [Israeli National Center of Blue Economy](#) was established in the Haifa municipality, which had been declared Israel's capital of Blue Economy and Blue Tech innovation. It is dedicated to technological innovation applied to maritime space, bringing together research institutes, industry, ports, environmental and community bodies to create partnerships and develop initiatives. There are other research centres currently working on various topics of the Blue Economy, like the [Haifa research centre for maritime policy and strategy](#), founded in 2016 to develop knowledge

<sup>60</sup> Ministry of Fisheries and Fish production of Algeria (2021).

<sup>61</sup> YNet News. (2023). [Sea to home: Israel's desalination plants addressing water scarcity](#)

in maritime strategy, and the Israeli National Resource Efficiency Center, created by the Israeli government to assist factories become more efficient in terms of resource use and environmental impact.

## Italy

In Italy, the Blue Economy employs almost 900,000 people (3.5% of the country's employment rate) and generates an added value of 46.7 billion euros (3% of the country's economy). The country does not have a national Blue Economy strategy per se, although it has appropriated 400 million euros to restore and protect the seabed and marine habitats, as a part of the EU-funded national recovery and resilience plan (RRP). This plan aims to stop the degradation of marine ecosystems and recover at least 20% of the seabed and marine habitats by 2026, in order to bolster the sustainability of Blue Economy sectors such as fishing, tourism, food, etc. In another component of the RRP, the Italian National Strategy for Circular Economy, the Blue Economy is identified as an area to intervene. And the country's National Strategy for Aquaculture for the 2014-2020 period also included aspects of environmental sustainability. Finally, the Blue Italian Growth (BIG) cluster groups research and industry actors of the Blue Economy. Italy has also won the leadership of Climate neutral and productive Sustainable Blue Economy Partnership (SBEP) established under Horizon Europe, the EU research and innovation programme. The initiative – which has 73 million euros and 23 million euros of additional funding from the EC – is coordinated by the Ministry of University and Research (MUR).

## Morocco

The potential of Morocco to develop its Blue Economy is great. Morocco's Blue Economy contributes nearly 2% of the country's GDP, and sectors such as aquaculture, seaweed farming, and renewable marine energy are still emerging. The country is mainly focusing on preserving the fishing sector with an emphasis on technological innovation and sustainability. The Moroccan Halieutic Strategy, which dates back to 2009, develops a strategy for maritime fishing based on sustainability and competitiveness. In addition, the country's Blue Economy Programme is supported by the World Bank with a \$350 million loan.

## Portugal

The Blue Economy in Portugal represents 5.1% of the country's GDP and 4.1% of employment. The sea also has a weight of 5.4% of total Gross Value Added (GVA)<sup>62</sup>. Portugal adopted the "National Ocean Strategy 2013-2020" for the development of ocean and coastal areas and to promote the competitiveness of the maritime economy and the implementation of sectoral and cross-sectoral projects, as well as the existing national strategic plans or those in preparation. The European Investment Fund (EIF) and the Portuguese development institution, Instituição Financeira de Desenvolvimento (IFD) launched Portugal Blue, a €50 million equity partnership to support Portuguese companies active in the area of the Blue Economy. The initiative seeks to foster the Portuguese Blue Economy ecosystem by providing funding to start-ups, SMEs, and midcaps at every stage of development.

<sup>62</sup> Econews. (2022). 'Blue economy' represents 5.1% of GDP, 4.1% of employment

## Tunisia

The Blue Economy in Tunisia<sup>63</sup> represents about 12% of the country's GDP, with 7.6 million people living in its coastal areas (66% of the population), so the country has plenty of margin for economic growth and jobs creation. Tunisia launched in 2022, with support from the World Bank, its first report on the status of the Blue Economy: "The Blue Economy in Tunisia: an opportunity for integrated and sustainable development of the sea and coastal areas", which recommends guidelines for the development of a broad national strategy on this matter. The report suggests the establishment of institutional governance; the promotion of resources and financing mechanisms; support for job creation, poverty alleviation, the inclusion of vulnerable groups, and gender mainstreaming; development of knowledge of marine and coastal capital; and strengthening of resilience to climate change. The World Bank is also financing the PROBLUE Trust Fund with a Blue Economy programme for Tunisia. On the other hand, as part of the WestMED Blue Economy Initiative, the country is implementing a Blue Economy strategy that builds upon traditional sectors but also promotes new emerging industries.

## Financing the Blue Economy

The transition of Blue Economy sectors will require a large quantity of both public and private investments. Funding options for sustainable Blue Economy initiatives are mostly offered by governments, International Organisations (IOGs), Multilateral Development Banks (MDBs) and (European) structural funds. Funding op-

tions consist mainly of grants or concessional lending instruments.

## EU financial mechanisms

The 2021 UfM Ministerial declaration on Blue Economy highlights the EU funding instruments such as Horizon Europe (2021-2027), the European Regional Development Fund (ERDF), the European Maritime and Fisheries Fund (EMFF), the European Neighbourhood Instrument (ENI) and the Connecting Europe Facility (CEF) programme. Moreover, the UfM encourages member countries to use future European Structural and Investment Funds (ESIF) and the Instrument for Pre-Accession (IPA) and Interreg programmes. In the EU, Mediterranean member states also have access to the large EU Next Generation funds that are financing green and digital investments until 2026 for a post-COVID sustainable recovery.

European Cohesion and Cooperation Programmes provide funds for projects to make the Mediterranean region smarter and greener and improve the governance between its stakeholders. As an example, the EU Interreg funds Euro-MED programme covers 69 regions of 14 countries from the northern shore of the Mediterranean: 10 EU member states and 4 countries from the Instrument for Pre-Accession Assistance (IPA). It provides funding for projects and initiatives related to climate action in line with the objectives set by the EC. Its four main missions are:

- Strengthening an innovative sustainable economy,
- Protecting, restoring and valuing the natural environment and heritage,

<sup>63</sup> CPMR Intermediterranean Commission and MedWaves, the UNEP/MAP Regional Activity Centre for SCP. (2022). *A Circular Blue Economy for the Mediterranean: Current practices and opportunities*.

- Promoting green living areas,
- Enhancing sustainable tourism.

Other relevant cooperation and cohesion funds available in the Mediterranean region are the [Interreg IPA Adriatic](#) and the [Interreg NEXT Programmes](#).

## Multilateral Development Banks

MDBs are actively supporting the Blue Economy in the Mediterranean countries:

- **European Investment Bank:** the EIB supports sustainability-oriented investments in [Blue Economy projects](#). It has developed and endorsed the [Sustainable Blue Economy Finance Principles](#) to finance ocean-based activities in the Mediterranean countries.
- **World Bank:** it has launched the multi-donor trust fund [PROBLUE](#) to support healthy marine and coastal ecosystems in emerging and developing countries, including the Middle East and North Africa (MENA) region.
- **African Development Bank:** it provides funding to develop [climate resilient ocean based activities and infrastructures](#) such as ports, fisheries and water-based facilities in North African countries.
- **European Bank for Reconstruction and Development:** the EBRD investment in Blue Economy sectors in MENA countries amounts to €6.7 billion in operations such as ship building, ports, solid waste management and tourism, through [Sustainable Blue Economy Finance Principles](#).

## Sustainable Blue Economy Finance Principles

UNEP's [Sustainable Blue Economy Finance Principles](#) are a global guiding framework to finance a sustainable Blue Economy. They were launched in 2018 and set out ocean-specific standards to allow green investments in ocean-based sectors. The principles were developed and endorsed by the EC, WWF, the World Resources Institute and the EIB, and are now hosted by UNEP as part of the [Sustainable Blue Economy Finance Initiative](#).

## Blue Bonds

Blue finance has strong potential to close the financing gap and support a thriving sustainable Blue Economy; specifically, blue bonds are emerging as an innovative instrument with increased interest from investors, financial institutions, and issuers globally. They are defined as debt instruments that finance the protection of critical clean water resources, as well as marine and ocean-based projects with positive environmental and social benefits.<sup>64</sup> Since 2020, the International Finance Corporation (IFC) from the World Bank has provided more than \$1 billion dollars in blue loans and bonds to private sector financial institutions and corporates, for example to boost recycling and reduce marine plastic pollution in Africa and Asia.<sup>65</sup> However, the lack of universal frameworks as well as a robust pipeline of bankable investments are critical barriers to achieving a sustainable Blue Economy.<sup>66</sup> Recently, UNEP Financial Initiative, the International Capital Markets

<sup>64</sup> <https://www.worldbank.org/en/news/feature/2018/10/29/sovereign-blue-bond-issuance-frequently-asked-questions>

<sup>65</sup> <https://www.ifc.org/en/what-we-do/sector-expertise/financial-institutions/climate-finance/blue-finance>

<sup>66</sup> Bosmans P, de Mariz F. (2023). The Blue Bond Market: A Catalyst for Ocean and Water Financing. *Journal of Risk and Financial Management*. 16(3): 184. <https://doi.org/10.3390/jrfm16030184>

Association (ICMA), the IFC, the Asian Development Bank (ADB) and the United Nations Global Compact (UNGC) have partnered to develop a global practitioner's guide for bonds to finance the sustainable Blue Economy<sup>67</sup>.

## Gaps and opportunities

Funding opportunities for Blue Economy projects in the Mediterranean are abundant. Nonetheless, there are some barriers to achieve its potential. In the first place, many of those funding options are still competitive and have a target more focused on the northern region of the Mediterranean.<sup>68</sup> In this way, countries in the southern region of the Mediterranean have more difficulties to access the available funding options and encounter various limitations. Both financial access and greater support in terms of capacity-building to southern stakeholders is crucial to achieve a balanced transition to a sustainable Blue Economy in the Mediterranean. In the second place, there is still a lack of awareness about the investment opportunities in the Blue Economy as well as a lack of dialogue and stakeholder's recognition.

Some additional actions proposed have been by the UfM to achieve a more balanced and effective financing in the Mediterranean.<sup>69</sup> Firstly, training on project management and conceptualisation should be enhanced. With the basis support of current examples of Blue Economy projects in the Mediterranean some areas noted to tackle would be budget preparation, consortium building, and the logical framework approach. Moreover, innovative

financial solutions are key. An example is blue bonds, as they offer an opportunity to mobilise private sector capital towards the Blue Economy. Thirdly, to continue the collaboration on investments between different stakeholders. For instance, the collaboration among international banks through the Sustainable Blue Economy Finance Principles has proved to be effective. Finally, to replicate good case practices such as the [BlueInvest initiative](#) from the EC and the EIF, which has proved to be successful. It contributes to financial access to SMEs and start-ups in the field of Blue Economy.

## Policy options

There are a large number of funding sources to finance Blue Economy projects and initiatives in the Mediterranean, among which the EU funds to support the development of a sustainable Blue Economy are relevant. Synergies between public and private funds for the Blue Economy development still could be further strengthened in order to align strategies and actions. Indicators of success of investments should not only be economic but include environmental and social criteria for measurement, as the objective is to support through investment a low-carbon and resilient economy.<sup>70</sup> Investors should incorporate into their strategies the sustainable finance principles and targets to promote a sustainable development of maritime sectors. Public and private investors should increase the levels of dialogue and coordination to ensure effectiveness.

<sup>67</sup> <https://www.unepfi.org/themes/ecosystems/unep-fi-joins-international-coalition-to-develop-guidance-on-blue-bonds/>

<sup>68</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

<sup>69</sup> Idem.

<sup>70</sup> Plan Bleu. (2020). *Blue economy in the Mediterranean: case studies, lessons and perspectives.*

## Blue jobs and skills

The development of the Blue Economy requires a variety of competences, from digital and technical to environmental and entrepreneurial skills. Moreover, socio-economic, marine-spatial planning, social media, language and cross-sectoral multidisciplinary skills will also be relevant.<sup>71</sup> Some of the challenges ahead for the Blue Economy labour market are the lack of awareness of blue jobs and careers, a mismatch between graduates (and their qualifications) and job offers, a lack of coordination skills and the so-called “brain drain”. Vocational education and training<sup>72</sup> are crucial for employability and to respond to the needs of Blue Economy sectors. Training adapted to the needs of employers can be useful to address sectoral changes and fast technological advances. Upskill and reskill workers can also be beneficial to increase job opportunities and contribute to the reduction of inequalities. Initiatives such as the Mediterranean Blue Economy Platform of the UfM can be a useful means to exchange information, tools and projects across Blue Economy projects.

The Blue Economy job market is already presenting a rise in job opportunities in several sectors. For instance, 30% of offshore renewable energy companies have complained about shortages in existing skills for new job positions, and it is expected that job vacancies in this sector in particular could triple by 2030 in the EU.<sup>73</sup> There is therefore a need to match

the educational provision with the needs of the labour market of the maritime sector. For instance, the Blue Skills initiative<sup>74</sup> launched by the UfM, promotes jobs and careers in the maritime sector that aims to offer training to allow upskilling of workers and long-term education in order to adapt to new jobs in the maritime sector. According to the European Marine Board<sup>75</sup> professionals working in the marine sector and its related education programmes are highly specialised.

## Gender gap

Many of the Blue Economy sectors present huge gaps between women’s and men’s jobs, and more gender-sensitive strategies and policies need to be implemented in line with Goal 5 of the 2030 Agenda, “Achieve gender equality and empower all women and girls”. In the tourism sector, 58% of people employed are women, but they tend to be the lowest paid and skilled, and are underrepresented in management positions.<sup>76</sup> In the renewable energy sector, an industry expected to rapidly grow in the coming years, women face more difficulties than men to access jobs. In fisheries and aquaculture, women have an important role in marketing and processing both in industrial and small-scale fisheries, but upskilling is needed in terms of transitioning into sustainable practices. And in maritime safety, maritime transport and ports, there is still a large gender gap in what are still considered male-dominated sectors, but

<sup>71</sup> UfM. (2019). *Seminar on Blue Skills, Careers and Jobs*.

<sup>72</sup> European Commission. (n.d.). *Vocational education and training initiatives*.

<sup>73</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU*.

<sup>74</sup> UfM. (n.d.). *BlueSkills: Blue Jobs and Responsible Growth in the Mediterranean*.

<sup>75</sup> European Marine Board. (2018). *Training the 21st Century Marine Professionals*.

<sup>76</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

there has been some improvement in fields like maritime research.

The UfM identifies policies that address the gender gap by focusing on skills and leadership training, participation, access to technology, gender-sensitive legal and

macroeconomic policies, and financial and operational support of grassroots women's organisations.<sup>77</sup> Actions to address this gap are ongoing at EU level, like the project "WINBLUE" to empower women and mainstream gender equality in the Blue Economy.

<sup>77</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean*



# **The Mediterranean Blue Economy by sectors**

During the last decades, economic activities across Blue Economy sectors have risen in the Mediterranean region. The sectors of transport, fisheries and tourism account for the largest share of the market, but the energy sector and aquaculture are also experiencing fast developments. The main employers of the Blue Economy are coastal and maritime tourism and fisheries, and a number of job opportunities are located in transport or port activities. Moreover, there is a large potential for employment and career creation in the sectors of blue biotechnology and marine renewable energies. Furthermore, predictions point out that the sectors of offshore wind energy, marine aquaculture, fish processing and shipbuilding repair and dismantling will experi-

ence significant growth in the following decades.<sup>78</sup>

### Sector overview

The EU considers as established sectors of the Blue Economy the following:<sup>79</sup> marine living and non-living resources, marine renewable energy, port activities, shipbuilding and repair, maritime transport and coastal tourism. Moreover, there are emerging and innovative sectors that are gaining importance in the EU such as: ocean energy, floating solar energy, offshore hydrogen generation, blue bioeconomy and biotechnology, desalination, maritime defence, security and surveillance, and research and infrastructure (submarine cables, robotics).

**Box 2: Established Blue Economy sectors in the EU**

Sector	Sub-sector
Marine living resources	Primary production
	Processing of fish products
	Distribution of fish products
Marine non-living resources	Oil and gas
	Other minerals
Marine renewable energy	Support activities
	Offshore wind energy
Port activities	Cargo and warehousing
	Port and water projects
Shipbuilding and repair	Shipbuilding
	Equipment and machinery
	Passenger transport
Maritime transport	Freight transport
	Services for transport
Coastal tourism	Accommodation
	Transport
	Other expenditure

Source: European Commission (2022). The EU Blue Economy Report.

<sup>78</sup> Plan Bleu. (2021). *Blue economy in the Mediterranean: Case studies, lessons and perspectives*

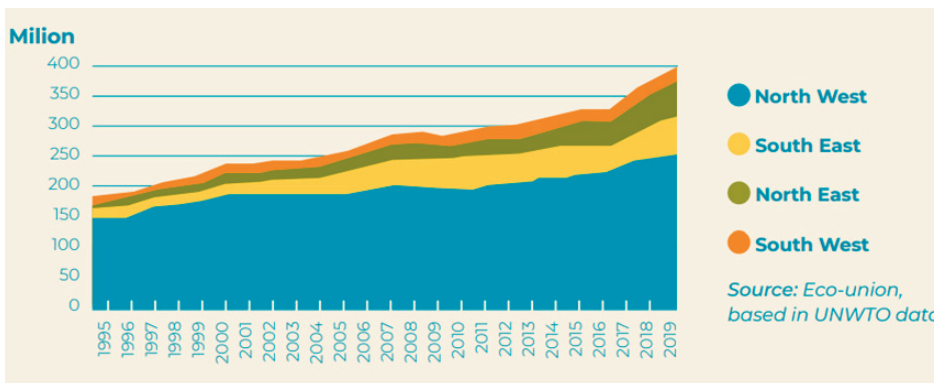
<sup>79</sup> European Commission, (2022). *The EU Blue Economy Report*.

However, marine non-living resources like oil and gas have not been included in this study because oil and gas are today one of the main sources of CO<sub>2</sub>-equivalent emissions and environmental pollution (PMs, NO<sub>x</sub>, SO<sub>x</sub>, etc.) and therefore cannot be considered sustainable.<sup>80</sup> Instead, the selection of the Blue Economy sectors has been done in accordance with the UfM's position,<sup>81</sup> which includes these sectors of particular interest for a sustainable Blue Economy development in the Mediterranean: coastal and maritime tourism; marine renewable energies; fisheries and aquaculture; marine transports and ports; marine safety; research and innovation; and pollution and marine litter. The following sub-chapters present an overview of the current status of each sector, quantifying their economic output and impact in the number of jobs, and a brief consideration of the potential for sustainability (except for the marine research and marine safety sectors).

## Coastal and maritime tourism

Coastal and maritime tourism in the Mediterranean is a key economic activity for coastal countries. This sector plays a significant role, either directly or indirectly, in boosting the region's economic growth by contributing 11.3% to GDP and employing 11.5% in the Mediterranean region.<sup>82</sup> Notably, the northern and western coastal regions of the Mediterranean receive the highest number of international tourist arrivals. Within this region, five countries, namely France, Spain, Italy, Turkey and Greece, account for more than 82% of total arrivals. Despite its significant contribution to the GDP of Mediterranean countries, the COVID-19 pandemic has underscored the sector's high volatility and sensitivity to external factors.

**Figure 12.** International tourist arrivals in the Mediterranean by regions, in millions (1995-2019)



Source: Eco-union (2021). The future of Mediterranean tourism in a (post) COVID world.

## GDP contribution

In the Mediterranean region, tourism is one of the most relevant economic sec-

tors. Concretely, it contributes to 11.3% of the total GDP, taking into account direct and indirect impacts. Moreover, it also contributes 11.5% of employment,

<sup>80</sup> See the [IPCC Climate Change 2022](#), [European Commission Taxonomy](#) or the [International Energy Agency Net Zero](#) report.

<sup>81</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>82</sup> UNEP/MAP and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean*.

11.5% of exports and 6.4% of capital investment in the Mediterranean region.<sup>83</sup> Numbers show its great contribution to economic development as it constitutes 11.5% of total employment (direct and indirect), 6.4% of capital investments and 11.5% of exports.<sup>84</sup>

Nonetheless, the contribution of tourism varies significantly among Mediterranean areas, as the northwest region receives the 64% of international tourist arrivals (ITAs), the southeast 17% and the northeast and southwest 5%. The inequality in tourism flows affects directly to the economic performance of the countries. The cruise industry has an important economic role in the Mediterranean and it is the second largest market after the Caribbean. In addition, recreational boating has a value chain that is expected to employ 280,000 people in Europe.

## Employment

Tourism in the Mediterranean greatly contributes to employment. It is remarkable that tourism is the largest sector employing migrant workers, part-time workers and women (women account for 58% of the workforce in the sector). Nonetheless, women are underrepresented in leadership positions in the sector and have a major representation in lower paid jobs in the tourism sector. Moreover, 13% of workers in a tourism-related activity are under 25.<sup>85</sup>

Nevertheless, the COVID-19 pandemic greatly affected the touristic sector and its employment rates, leaving from 100 to 120 million jobs at risk globally. The transition to a more sustainable tourism in the following

years will offer the opportunity of jobs in sustainable production and consumption, as well as in resource management and environmental protection. New employment in the marine renewable energy sector may also require new training of the actual labour force.

## Sustainability

Coastal tourism plays a significant role in driving GDP growth, but its downsides should not be underestimated. The current mass tourism models often bring negative consequences for local communities and natural ecosystems, resulting in environmental and social externalities. However, there are opportunities for positive change by shifting the sector toward sustainable practices.

In this regard, sustainable tourism models have the potential to create employment opportunities in local communities while simultaneously promoting the preservation of natural areas and cultural heritage.<sup>86</sup> Notably, after the COVID-19 pandemic, sustainable and nature-based tourism models have been growing. As a result, consumers are becoming increasingly willing to favour sustainable tourism choices, showing a growing interest in ecotourism in marine and coastal ecosystems. This shift in consumer preferences also has the potential to redirect financial resources and funding towards sustainability initiatives within the tourism industry.<sup>87</sup> To assess progress, tourism developments should be measured with sustainability indicators and an innovative range of tourism should aim to reduce the sea-

<sup>83</sup> UNEP/MAP and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean*.

<sup>84</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>85</sup> Union for the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>86</sup> *Plan Bleu and eco-union (2022). State of Play of Mediterranean tourism*

<sup>87</sup> UNEP/MAP and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean*.

sonality and the gap between tourism in coastal areas and in inland territories.<sup>88</sup>

## Cooperation initiatives

Several initiatives and frameworks have been identified<sup>89</sup> that promote the collaboration of Mediterranean countries in coastal tourism. The analysis of the cooperation initiatives at different geographical levels shows that regional structures cover all Mediterranean countries, although they could be more developed to make current frameworks more effective. Differently, sub-regional initiatives are more dispersed across the region and not so well-balanced, as most sub-regional frameworks are concentrated in the northwest of the Mediterranean.

### Regional level:

- ASCAME-UNWTO commitment to promote the development of sustainable tourism in the Mediterranean, support job creation, social business initiatives, facilitate and enhance the flow of investment and increase investment attractiveness of the Euro-Mediterranean region.
- The Mediterranean Tourism Forum (MediTour), a gathering of chambers of commerce, public and private institutions, international organisations, training centres and tourism professionals every two years to promote tourism in the Mediterranean region.

### Sub-regional level:

- The Athens Declaration for a Sustainable Tourism (2017) from the INTER-REG MED Sustainable Tourism

Community to address tourism pressures in the Mediterranean region.

- MEET Network: a network of Mediterranean protected areas developing high-quality ecotourism experiences that benefit conservation and local communities.
- Petra Declaration on Investing in Tourism for an Inclusive Future (2016) by tourism stakeholders to build an inclusive and sustainable tourism sector.
- A European Strategy for more Growth and Jobs in Coastal and Maritime Tourism (2014) from the EC to enhance the sector's sustainability and competitiveness..
- BLUEMED initiative endorsed by the EU and member countries of the UfM to advance a shared vision for a more healthy, productive, resilient, better known and valued Mediterranean Sea.
- EU Communication on Sustainable Blue Economy published in 2021 by the EC to help achieve the European Green Deal's objectives by contributing to climate change mitigation.

### Others Transnational projects:

TouriSME (North Med); MEDPEARLS (Regional); CROSSDEV (Regional); CO-EVOLVE (North Med); WINTER MED (North Med); SIROCCO (North Med); HERIT-DATA (North Med); BEST MED (North Med); SMART MED (North Med).

## Marine renewable energies

Several types of marine renewable energies are being developed in the

<sup>88</sup> Plan Bleu. (2020). Blue economy in the Mediterranean: case studies, lessons and perspectives. Paper no. 19.

<sup>89</sup> UfM. (2023). Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.

Mediterranean region such as offshore wind energy, wave energy converters, tidal stream technologies, ocean thermal energy conversion and floating solar. In comparison to other sea basins in Europe, the environmental, physical and climate factors that affect the Mediterranean Sea, such as having less wind, deeper sea floors, current and tide, are factors that hinder the development of marine renewable energies.<sup>90</sup> However, offshore wind has a huge potential, and it is predicted that it could increase energy production up to 12 GW in 20230 and to 40 GW in 2050 in EU Mediterranean countries.<sup>91</sup>

A sustainable energy ocean mix should include bottom-fixed offshore wind, floating wind, thermal, wave and tidal energy.<sup>92</sup> The [EU strategy on offshore renewable energy](#) proposes actions to sustain the sector's development and to multiply its capacity in the long term. In order to achieve a successful energy transition in the Mediterranean Basin, cooperation and the development of an enhanced regional energy market are important to achieve major cost-effectiveness in climate change mitigation.<sup>93</sup>

## GDP contribution

Marine energy contributes to the EU's GDP with €36.1 billion and to its GAV with €1.1 billion. Moreover, having major energy independence is key for countries today. All the reports consulted give figures related to EU countries, but not non-EU countries.

## Employment

The sector currently employs 4,624 people<sup>94</sup> and it holds the potential to create 400,000 jobs by 2050 in different technological sectors and markets. Moreover, the development of marine renewable energies can also contribute to job creation in other economic sectors such as construction, marine transport, engineering, manufacturing activities, etc. The renewable energy sector is attractive to young workers and job opportunities may fit the skills of the youth who are aware of sustainability and who have digital and technological knowledge. Nevertheless, gender equality in the sector has still not been reached as it is still majorly dominated by men.

## Sustainability

Marine renewable energy represents an unprecedented opportunity to enhance the decarbonisation of the energy sector. Among these, offshore wind energy is commonly regarded as a highly reliable means of advancing renewable energy generation and a decarbonised energy supply. It offers the capacity for local electricity generation while decreasing maritime transportation's need for oil or gas, thus mitigating spill risks. Furthermore, given the present circumstances of rising energy costs, limitations in supply, and reliance on foreign nations for conventional energy supplies, offshore wind energy is emerging as a strategic renewable energy source to enhance resil-

<sup>90</sup> Plan Bleu. (2022). [Towards a sustainable development of marine renewable energy in the Mediterranean](#)

<sup>91</sup> Plan Bleu. (2021). *Blue economy in the Mediterranean: Case studies, lessons and perspectives*.

<sup>92</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU: Transforming the EU's Blue Economy for a Sustainable Future*.

<sup>93</sup> MedECC. (2020). *Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report*.

<sup>94</sup> Union for the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

ience.<sup>95</sup> In light of this, offshore wind energy has been considered as pivotal in increasing European energy security and aiding in the achievement of the 2030 and 2050 climate neutrality objectives.

The Mediterranean region is meant to make a substantial contribution, targeting over 76 GW by 2050.<sup>96</sup> Nevertheless, this expansion requires careful planning and management due to the Mediterranean Basin's status as a biodiversity hotspot facing significant threats. In the case of offshore wind energy, environmental impacts and marine spatial planning are still poorly addressed during the planning process.<sup>97</sup> Hence, assessing the environmental impacts of new marine renewable energy projects and their impact on the ecosystem is essential and should be integrated into strategic planning processes. These plans should adopt an ecosystem-based approach to ensure the preservation of a healthy ocean, resilient marine ecosystems, and sustainable marine resources and services. Existing initiatives include the Offshore Coalition for Energy and Nature (OCEaN), a forum that aims at deploying offshore wind energy infrastructure while ensuring the protection of marine ecosystems.

## Cooperation initiatives

The UfM analysis<sup>98</sup> shows that the marine renewable energies sector is not still consolidated in the region, and the number of initiatives in this sector is much lower than in others. Nonetheless, in recent years, an increase in initiatives can be no-

ticed. Regional frameworks cover the different regions in the Mediterranean well, but it is remarkable that some mechanisms overlap each other. The sub-regional coverage could be better balanced, as the EU countries hold the major number of projects and regional frameworks on marine renewable energies. However, most initiatives in EU countries are national. Finally, the UfM points out that the main focus of current transnational projects is capacity building in the northern region of the Mediterranean (east and west). It is relevant to highlight that no transnational projects on marine renewable energies have been identified in the southern region of the Mediterranean. Moreover, platform and capitalisation projects are less extended in any area of the Mediterranean Basin.

### Regional level:

- UfM Ministerial Declarations on Environment and Climate Change (October 2021) and Energy (June 2021): underlying commitment to decarbonising the energy sector and to fight against climate change.
- UfM Renewable Energy and Energy Efficiency Platform: it aims at promoting the deployment of renewables and energy efficiency to support mitigation and adaptation to climate change in the Mediterranean region.
- UfM Regional Electricity Market Platform: it aims at the integration of energy systems and energy markets to achieve a secure, affordable and

<sup>95</sup> Galparsoro, I. et al. (2022). Reviewing the ecological impacts of offshore wind farms. *npj Ocean Sustain* 1,1.

<sup>96</sup> Offshore Coalition for Energy and Nature (OCEaN). (2022). *Offshore Coalition for Energy and Nature (OCEaN) to be expanded to the Mediterranean*.

<sup>97</sup> Galparsoro, I. et al. (2022). Reviewing the ecological impacts of offshore wind farms. *npj Ocean Sustain* 1,1.

<sup>98</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy*.

sustainable electricity supply in the Mediterranean region.

- Mediterranean Association of National Energy Management Agencies (MEDENER): it brings together agencies in the Mediterranean region in charge of energy efficiency and the promotion of renewable energy sources.
- Mediterranean Energy Regulators platform (MedReg): it brings together 27 energy regulators from 22 Mediterranean countries to facilitate and develop regulatory approaches and practices for energy market integration.
- Mediterranean Energy Observatory (OME): it brings together leading Mediterranean energy companies in a platform for energy dialogue, cooperation and best practices exchanges.

**Sub-regional:** Marine Renewable Energy frameworks have only been found at an EU level.

- European Union's Communication on Sustainable Blue Economy (2021)
- EC Offshore Renewable Energy Strategy (2020)

**Sub-regional:** Renewable Energy frameworks

- Regional Centre for Renewable Energy and Energy Efficiency (RCREEE): intergovernmental organisation that aims to increase renewable energy and energy efficiency practices across pan-Arab countries.
- Central and South Eastern Europe energy connectivity (CESEC): high-

level working group to accelerate the integration of central eastern and south eastern European gas and electricity markets.

#### **Trans-national projects:**

MAESTRALE (North Med); PELAGOS (North Med); BLUE DEAL (North Med).

## **Fisheries and aquaculture**

Seafood continues to be a central part of the Mediterranean economy, as it is a source of food, employment and income. As population rises in coastal zones, the demand for seafood products continues to rise too. In comparison to other economic sectors in the region, fisheries and aquaculture appear to have a lower economic output but they are relevant in terms of food safety and employment opportunities.

Landings from capture fisheries in the Mediterranean have diminished since the 1990s, and in 2020 there was a significant decrease attributed to the COVID-19 pandemic. The landings in the region for the 2018-2020 period, on average, amount to 1,189,200 tonnes. In contrast, aquaculture production in the Mediterranean has increased during the last decades. It rose from 509,678 tonnes in 1996 to 882,111 tonnes in 2019.<sup>99</sup> The production in the region is further expected to rise up to 4,600,000 tonnes in the next decade.<sup>100</sup> The countries that produce a major number of aquaculture products are Egypt, Turkey, Greece, Italy and Spain.

## **GDP contribution**

In 2020, the Mediterranean region generated a total fisheries revenue of USD 2.7

<sup>99</sup> IEMed. (2021). Aquaculture in the Mediterranean. *IEMed Mediterranean Yearbook 2021*.

<sup>100</sup> FAO (2018). *Strategy for the sustainable development of Mediterranean and Black Sea aquaculture*.



billion,<sup>101</sup> while the aquaculture industry yielded USD 3.4 billion in 2019.<sup>102</sup> Nonetheless, only seven Mediterranean countries are net exporters of seafood products (Morocco, Turkey, Tunisia, Croatia, Malta, Albania, Greece), while the remaining countries in the region face a seafood supply deficit and import seafood products.<sup>103</sup> The latter is relevant for both local and regional consumption, as well as international commercialisation.

## Employment

Fisheries and aquaculture are estimated to provide one million jobs, both direct and indirect, in the Mediterranean Sea Basin, with a fleet of about 100,000 fishing vessels and more than 30,000 fish farms.<sup>104</sup> However, the workforce is aging and only 17% of the workers are under 25 years old. Opportunities in the fishing sector from digitalisation provide new opportunities in the fields of data collection and analysis, monitoring through artificial intelligence (AI) systems and marine resources management.

## Sustainability

The future of marine food systems in the European region of the Mediterranean is expected to rely on responsible fishing, sustainable aquaculture and the further development of algae-based food production as a sustainable alternative.<sup>105</sup> The sector of fisheries is experiencing

some environmental risks and challenges such as the degradation of marine habitats, overfishing, industrial pollution, the introduction of non-indigenous species and the effects of climate change and rising temperatures. Over the last 50 years, fishing methods have become more industrialised and overfishing threatens around 80%<sup>106</sup> of fish stocks in the region. Reducing unwanted fish catches through more selective techniques is imperative in this regard. Recreational fishing is a very common activity in the Mediterranean although its real impact on diversity is not yet known specifically.

In terms of aquaculture activities and their environmental consequences in coastal areas, there is a growing interest in developing offshore aquaculture to mitigate these challenges. When managed sustainably, aquaculture has the potential to serve as a low-impact source of food. For instance, practices like low-trophic, multi-trophic, and organic aquaculture can contribute to a more environmentally sustainable industry.

To enhance the sustainability of the fisheries and aquaculture sectors, the EU's "Farm to Fork Strategy" launched in 2020 by the EC sets an ambitious 10-year roadmap transition to sustainable food systems.<sup>107</sup> This includes seafood, with specific actions and initiatives (like the [Blue Farming strategy](#) for aquaculture) covering every step of the food chain: from produc-

<sup>101</sup> FAO. (2022). *The State of Mediterranean and Black Sea Fisheries 2022*.

<sup>102</sup> IEMed. (2021). *Aquaculture in the Mediterranean*.

<sup>103</sup> FAO. (2022). *The State of Mediterranean and Black Sea Fisheries 2022*.

<sup>104</sup> UNEP/MAP and Plan Bleu. (2020). *State of the Environment and Development in the Mediterranean*.

<sup>105</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU: Transforming the EU's Blue Economy for a Sustainable Future*.

<sup>106</sup> General Fisheries Commission for the Mediterranean. (2017). *Scientific Advisory Committee on Fisheries (SAC) - 19th session*.

<sup>107</sup> European Commission. (2020). *Farm to Fork strategy*. Accessed; 6 September 2023, <[https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy\\_en](https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en)>

tion and distribution to consumption, food loss and waste prevention.

Technology and digitalisation will be two key components to achieve greater efficiency and reduce risks in the sector. For example, digital tools such as monitoring and automatic catch reporting systems, AI and ecosystem modelling can serve as a means to collect data and optimise control and fishing operations.<sup>108</sup>

### Circularity opportunities

Fisheries and aquaculture present sustainability challenges in the production chain, since they highly rely on plastic materials along the seafood products value chain (gear, equipment, fish crates, packaging, etc.). Other environmental impacts are related to discharge, waste, transportation, by-catch, etc. In this way, several circularity opportunities arise both in the seafood production and transformation sectors. Marine aquaculture has the potential to be a more sustainable activity for seafood production, and several innovative technologies such as aquaponics, integrated multi-trophic aquaculture (IMTA), recirculating aquaculture systems (RAS) or Biofloc are being developed with a circular approach.<sup>109</sup> Moreover, circular systems could contribute to a major sustainability through an eco-design of engines and gear (i.e., using non-mixed materials), upcycling or recycling (bio-products from seafood waste, fishmeal for aquaculture, biogas production from fish waste), mutualising equipment or boats, or repairing and reusing discarded materials (i.e., regenerated nylon from fishing nets or seafood boxes).

### Cooperation initiatives

The UfM<sup>110</sup> pointed out that regulations and policies that emerge from the General Fisheries Commission for the Mediterranean (GFCM) structure are regional frameworks that cover the different areas in the Mediterranean well. Nevertheless, at a sub-regional level, the EU is leading most of the strategies and initiatives towards sustainability in fisheries and aquaculture. Most of the sub-regional projects cover the south-west countries and the EU countries.

Exceptionally, some sub-regional basin initiatives such as the EUSAIR or WestMED initiatives include specific strategies and action plans on fisheries and aquaculture. Transnational projects that are collaborative platforms involve a large number of countries, but other transnational countries are more concentrated in specific regions and less well distributed. Finally, capitalisation projects appear to be mostly happening in the northern part of the Mediterranean and the number of capacity-building and R&I projects is low in the southeast of the Mediterranean, in comparison with other areas.

### International

- UN Fish Stocks Agreement (UNFSA): sets out principles for the conservation and management of fish stocks and establishes that management must be based on the precautionary approach and the best available scientific information.
- Code of Conduct for Responsible Fisheries (FAO): sets out international standards for responsible practices with a view to ensuring the

<sup>108</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU: Transforming the EU's Blue Economy for a Sustainable Future*.

<sup>109</sup> Plan Bleu. (2022). *A Circular Blue Economy in the Mediterranean*.

<sup>110</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy*.

effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity.

## Regional

The General Fisheries Commission for the Mediterranean (GFCM) was established within the framework of the FAO and is crucial in the governance of fisheries and aquaculture in the Mediterranean. Some of its key regulations and strategies at a regional level are the following:

- Regional Plan of Action for Small-Scale Fisheries in the Mediterranean (FAO): political commitment setting out a ten-year roadmap towards the long-term environmental, economic and social sustainability of the sector.
- The IUU Plan of Action (FAO): to take effective measures globally, regionally and nationally to combat illegal, unreported and unregulated fishing.
- Strategy for the Sustainable Development of Aquaculture: communication from the EC on sustainable aquaculture.
- MedFish4Ever Ministerial Declaration (2017): a common declaration on the future of Mediterranean fisheries for a ten year strategy to ensure sustainability of resources, based on best scientific advice and taking into consideration social-economic aspects.
- SFS-MED Platform: multi-stakeholder initiative aimed at promoting collaborative actions for the sustainable transformation of food systems in the Mediterranean.

## Sub-regional

- The Common Fisheries Policy (CFP): set of rules for sustainably

managing European fishing fleets and conserving fish stocks.

- EU Guidelines for a sustainable and competitive aquaculture: strategy by the EC to further development of aquaculture in a way that contributes to the European Green Deal.
- EU4Algae stakeholder platform: space for collaboration among European algae stakeholders as a single information hub on algae funding calls, projects, business-related information, intelligence and best practices.
- WestMed Technical Group on Sustainable Aquaculture (AquaWest): technical group to support the adoption of innovative, eco-compatible sustainable aquaculture practices in the Western Mediterranean.
- OECD Committee For Fisheries (COFI): to provide timely, evidence-based policy analysis of pressing global issues in fisheries, aquaculture and sustainable fisheries management

## Transnational projects

LabMAF (Regional); FISH MED NET (Regional); Med ByCatch I and II (Regional); BLUEFasma (North Med); MED-AID (Regional); MEDFISIS (Regional).

## Marine transport and ports

The Mediterranean Sea has been for centuries key for marine commercial routes, mostly the Suez Canal, the Strait of Gibraltar and Bosphorus and Dardanelles Straits. It represents 27% of global maritime commercial traffic and 30% of marine oil traffic,<sup>111</sup> and it is essential for trade flows along the Mediterranean. Some of the critical environmental impacts of the

<sup>111</sup> Plan Bleu. (2021). Blue economy in the Mediterranean: Case studies, lessons and perspectives.

sector are CO<sub>2</sub> emissions, air and water pollution, maritime spills and chemical pollution, noise and impacts on marine biodiversity.<sup>112</sup> Consequently, the green transition of maritime transport is crucial and needs to address a wide range of key points, from reducing greenhouse gas emissions to diminishing its impact on marine ecosystems.

Ports in the Mediterranean are productive spaces interconnected through rail and roads, and often constitute complex systems of activity. In total, there are around 600 ports in the Mediterranean, from which the most relevant ones are the ports of Piraeus (Greece), Valencia, Barcelona, Algeciras (Spain), Genoa (Italy) and the Tangier Med port (Morocco). The level of transport infrastructure that connects ports with other areas in the region varies between regions, as some of them have a higher level of rail and road infrastructures.

It is expected that the regionalisation of supply chains in the Mediterranean will increase,<sup>113</sup> which will benefit the commercial trade among northern and southern Mediterranean nations. Moreover, the future of ports relies on digitalisation to serve as hubs for clean energy, Circular Economy and waste management, logistics, industrial clusters and for communication through submarine cables. The potential of smart digital solutions and systems to achieve a greater level of optimisation of operations is also remarkable.

## GDP contribution

Ports in the different regions of the Mediterranean are crucial for the economic development of its regions. Representing just 3.5% of world water, the Mediterranean represents 27% of global maritime commercial traffic.<sup>114</sup>

The port of Barcelona, one of the largest in the Mediterranean, accounts for 7.1% of the GVA in the Catalonia region and the port of Genoa-Savona's contribution to the Italian economy is almost 10 billion euros.<sup>115</sup> Other major ports in the Mediterranean region with a great GDP contribution are the port of Tanger-Med in Tunisia (the biggest in Africa, total volume of goods processed in 2020 amounted to 80,972,906),<sup>116</sup> the port of Haifa in Israel (vital to the country's GDP, it handles around 50% of all of Israel's cargo) and the Mersin International Port in Turkey (its contribution to the national GDP has historically been around 1.8%).<sup>117</sup>

## Employment

As noted, during the COVID-19 pandemic, the maritime transport and ports activities fluctuated as it is sensitive to external crises and shocks. In this regard, employment in the sector can be more volatile and unstable than in other Blue Economy sectors, and the sector is currently facing labour shortages. Still, around 1.5 million workers are directly employed in European ports, and the

<sup>112</sup> Seas At Risk. (2023). *The State of Shipping & Oceans Report*

<sup>113</sup> Giovannetti, G. and Vivoli, A. (2021). *Mediterranean Sea and the Covid pandemic: A turning point for globalisation? Logistics and Global Value Chains*.

<sup>114</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>115</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>116</sup> Tanger-Med. (2020). *Annual Report 2020*.

<sup>117</sup> Plan Bleu. (2022). *A circular Blue Economy in the Mediterranean*.

same number are employed indirectly across the EU maritime member states. Ports hold the potential to employ people in a diverse range of areas and future skills related to digital and green transition will be needed. For instance, the port of Barcelona, Spain, contributes to 6.3% of employment in Catalonia;<sup>118</sup> the port of Genoa, Italy, is estimated to employ 122,000 people<sup>119</sup> and the expansion of the Mersin International Port, Turkey, is expected to create 500 new direct jobs.<sup>120</sup>

## Sustainability

In the pursuit of increasing the sustainability of the transport sector, the European Green Deal aims to reduce 90% of greenhouse emissions from all transport modes. The decarbonisation of maritime transport, apart from contributing to a reduction of greenhouse gases, will also reduce water pollution and underwater noise. For instance the EC has released the Fuel EU Initiative for the use of low-carbon fuels in maritime transport and EU ministers unanimously adopted a common position.<sup>121</sup> The aim is to reduce greenhouse emissions coming from maritime transport by promoting energy efficiency, a greater demand of green fuels, avoiding distortions in the internal market and in the operations of marine traffic.

Additionally, the International Maritime Organisation (IMO) recently adopted the Mediterranean Sea Emission Control Area for Sulphur Oxides and Particulate Matter (Med SOx ECA),<sup>122</sup> which is ex-

pected to become effective in May 2025. The UNEP/Mediterranean Action Plan (MAP) served as a forum for the multilateral negotiations on the Med SOx ECA. When it comes into effect, all ships operating in the Mediterranean will have to comply with limited quantities of sulphur content in fuel oil. The Med SOx ECA is expected to have great benefits on people and nature in the Mediterranean, since lower levels of pollutants in marine areas and ecosystems will serve to prevent major levels of acidification.

## Circularity opportunities

A major circularity in ports could be enhanced through the creation of close circuits and synergies between actors in order to reuse and recycle materials, energy, ships, waste and fuel. As converging points for waste and industrial activities, ports function as pivotal logistical hubs for the movement of waste materials, contributing significantly to environmental challenges such as oil spills, air, noise, and light pollution, among others. While there is a general consensus that ports should be equipped with waste management facilities, the key to mitigating their environmental footprint primarily lies in embracing a Circular Economy approach.

Ports can adopt various strategies to enhance the Circular Economy. Firstly, they can promote circularity in their assets and equipment, by optimising and extending the lifespan of various port resources

<sup>118</sup> Union for the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>119</sup> Union for the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region*.

<sup>120</sup> Anadolu Ajansı (2021). *Mersin International Port handles lion's share of Turkey's rising export volume*

<sup>121</sup> European Union Council. (2022). Proposal for a regulation of the use of renewable and low-carbon fuels in maritime transport.

<sup>122</sup> <https://www.unep.org/unepmap/news/press-release/mediterranean-historic-milestone-MedSOxECA>

through maintenance and smart use. Moreover, ports can transform materials that would typically be considered waste into valuable resources by implementing innovative approaches like recycling, up-cycling and cascading. Lastly, ports can play a vital role in promoting circular practices across various industries by acting as intermediaries, connecting the supply and demand for specific materials within a circular ecosystem.<sup>123</sup> This not only benefits the port itself but also contributes to greater sustainability in multiple sectors.

## Cooperation initiatives

The UfM has identified a series of cooperation initiatives<sup>124</sup> at a regional and sub-regional level in the Mediterranean, as well as a series of transnational projects. It was found that regional initiatives in the field of maritime transport and ports are extended across several regions, but sub-regional activities are mostly concentrated on the Western Mediterranean. R&D projects are mostly located in NMCs as well as in Israel. Project capitalisation<sup>125</sup> has some limitations, with the exception of the EU and Albania. Finally, most collaborative projects include the northern countries, but Lebanon and Egypt are present as well.

At a **regional level**:

- Regional Transport Action Plan for the Mediterranean (RTAP) 2021-2027: guidelines adopted by UfM transport ministers for the promotion of the multimodal Trans-Mediterranean Transport.

- CPMR-IMC Working Group on Transport and Integrated Maritime Policy: the Intermediterranean Commission (IMC) of the Conference of Peripheral Maritime Regions (CPMR) to support Mediterranean regional authorities' efforts to improve the implementation of the EU and Mediterranean agreements.
- MED SOx ECA: the Mediterranean Sea Emission Control Area for Sulphur Oxides and Particulate Matter (Med SOx ECA) aims to limit air pollution from ships.
- UfM Working Group on Transport: it lays the groundwork at technical level for the UfM Ministerial Conference on Transport.
- Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC): it assists the Mediterranean coastal states in the prevention and response to marine pollution from ships.
- MEDports Association: a platform of collaboration and exchange between the Mediterranean ports on common issues and also promoting international visibility of the Mediterranean maritime region.

At a **sub-regional level**, most initiatives are applied at EU level or in the Western region of the Mediterranean.

- Motorways of the Sea: it aims to introduce new intermodal maritime-based logistics chains in Europe to improve transport organisation in a sustainable manner.
- Trans-European Transport Network (TEN-T): for the development of co-

<sup>123</sup> Plan Bleu. (2022). *A circular Blue Economy in the Mediterranean*.

<sup>124</sup> Union for the Mediterranean. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy*.

<sup>125</sup> Capitalisation: Innovative process which aims to enable the uptake of the results of a series of different projects/programmes/initiatives by identifying successful and efficient practices, ensuring their promotion, dissemination, replication and mainstreaming in public policies.

herent, efficient, multimodal, and high-quality transport infrastructure across the EU.

- European Maritime Safety Agency (EMSA): European agency that aims to reduce the risk of maritime accidents, tackle maritime pollution and coordinate search and rescue at sea.
- EU Strategy for the Adriatic and Ionian Region (EUSAIR): to foster social, economic and territorial cohesion to reduce disparities in the Adriatic-Ionian macro-region through cooperation
- Centre for Transportation Studies for the Western Mediterranean (CETMO): for the improvement of transport and logistics and socio-economic development.
- WestMED Technical Group on Green Shipping: to support a greener and fully sustainable maritime transport in the Mediterranean.

Many transnational projects on marine transport and ports are implemented in different geographical region: EuroMed Transport Logistics Project – LogisMed TA (South-West Med); EuroMed TSP - EuroMed Transport Support Project (South Med); EuroMed Transport Maritime Project (SAFEMED IV) (South Med); LOCATIONS - Low Carbon Transport in Cruise Destination Cities (North Med); DataPorts - New smart platform for European ports (Regional); SAFEMED IV.

## Marine safety

Maritime safety and security are the basis for human security, a correct functioning of economic activities and freedom of navigation. The negative impact of some Blue Economy industries such as pollution and accidents, waste dumping and resource

exploitation can have a detrimental effect on the environmental security in the Mediterranean. All those environmental risks and threats affect the security and safety of the Mediterranean region. Coastguard coordination, exchange of information and satellite data are crucial to ensure safety and to support safe economic and social activities and transportation. In this regard, the EC has developed the common information sharing environment (CISE)<sup>126</sup> for the maritime domain, which aims to enable the exchange of information automatically and in a secure way within maritime surveillance systems.

The Mediterranean Basin faces several threats related to socioeconomic and environmental sources. Marine safety is directly related with the negative impact of some Blue Economy industries, such as pollution, resource exploitation, loss of biodiversity, and so on. All those environmental risks and threats affect the security and safety of the Mediterranean region. Coordination in terms of security in the Mediterranean Sea is crucial to support a safe development of economic and social activities and movements.

## GDP contribution and employment

Job opportunities emerge for various disciplines and in sectors and businesses working in security and cyber-security, monitoring, innovative technologies and environmental protection. Moreover, multidisciplinary will be key for new processes and programmes. However, no figures were available at this stage.

## Cooperation initiatives

The UfM has identified several cooperation initiatives in the Mediterranean in

<sup>126</sup> European Commission. (n.d.). Common information sharing environment (CISE).

the sector of marine security.<sup>127</sup> The UfM has concluded that there are many regional frameworks on marine security that have a broad coverage of the different areas. However, in sub-regional areas many cooperation initiatives in this matter are missing, as most of them are located in the EU. Transnational projects have a broader distribution, and they are often bilateral cooperation structures. Finally, project capitalisation could be further developed since it has not been prioritised.

### Regional:

- Conventions of the International Maritime Organisation): related to maritime safety and security.
- Mediterranean Coast Guard Functions Forum (MedCGFF): it brings together representatives of organisations and institutions which engage in coast guard activities in the Mediterranean.
- Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC): it assists the Mediterranean coastal states in the prevention of and response to marine pollution from ships.

### Sub-regional:

- SAMEMED Initiative by the European Maritime Safety Agency (EMSA): to develop Euro-Mediterranean co-operation in the field of maritime safety and security and prevention of pollution from ships.
- European Fisheries Control Agency (EFCA): to promote the highest common standards for control, inspection and surveillance under the Common Fisheries Policy.
- European Border and Coast Guard

Agency (Frontex): it supports EU member states and Schengen-associated countries in the management of the EU's external borders and the fight against cross-border crime.

- Common Information Sharing Environment (CISE): an EU initiative providing a decentralised framework for information exchange across sectors and borders. It involves more than 300 EU and national authorities with responsibilities in maritime surveillance.
- Copernicus Maritime Surveillance (CMS): to support the fisheries control activities, maritime safety and security, law enforcement, customs activities, marine environment monitoring (pollution) and other operations linked to anti-piracy and defence.

### Transnational projects:

SAFEMED IV (Regional); West-MOPoCO (West Med); MED OSMoSIS (North Med); CALYPSO SOUTH (Cross-border)

## Marine research and innovation

Research and scientific evidence across the Mediterranean Basin is key for the development of a sustainable Blue Economy. Many different initiatives exist such as the Blue Med Initiative, launched by the EC in 2014. Moreover, in 2018, the Mediterranean countries agreed on a Strategic Research and Innovation Agenda (SRIA) for the Mediterranean and an implementation plan was written in 2020. Some other relevant initiatives are the Mediterranean Blue Economy

<sup>127</sup> Union for the Mediterranean. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*



Stakeholders Platform, the Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans), the Copernicus Marine Service, the European Marine Observation and Data Network (EMODnet), the role of Maritime Clusters, UNIMED (Mediterranean Universities Union) and SEMED, among others.

Innovative technologies such as big data, advanced sensors and modelling, AI and autonomous systems will take the lead in the transformation towards a more sustainable Blue Economy. Research and innovation can contribute to reaching major levels of circularity and sustainability in traditional sectors and are key in innovative ones. High-quality data collection in oceans is the basis for an integrated Blue Economy transformation and for informed decisions of the various relevant stakeholders. In this regard, the digitalisation and usability of ocean data are key for its transformation into useful information for analysis and to make decisions.

In Europe, an example of sharing marine data is the European Marine Observation and Data Network (EMODnet),<sup>128</sup> which consists of a network of organisations that process marine data according to international standards and make it accessible. Moreover, satellite data is provided by the Copernicus marine service and the Destination Earth (DestinE) initiative consists of monitoring and predicting the interactions between human activities and natural phenomena. As investment in research and innovation is crucial for reaching sustainability objectives in the Blue Economy, the EU offers various R&I funding opportunities under Horizon Europe and Restore our Ocean and Water Mission for sustainable Blue Economy projects and processes.

## GDP contribution and employment

Innovative areas and research hold the potential to create new jobs and career-paths in the Mediterranean Blue Economy, such as blue biotechnologies, low-carbon technology innovation, and broader research and innovation in sustainable Blue Economy practices. Although there are no figures available at a regional level to quantify the economic output of marine research as a whole, there are estimates for specific fields of research like bioprospecting, which is the search for genes, molecules and organisms from the marine environment with a potential value for society (medicine, food, cosmetics, etc.). This sector, only in the EU, accounted for EUR 1 billion in 2017.<sup>129</sup>

## Cooperation initiatives

At a regional level, the main initiatives are:

- BLUEMED initiative: adopted by all members of the UfM and enhances joint actions on research and innovation.
- BlueMed Strategic Research and Innovation Agenda (SRIA): it details challenges in the Mediterranean and proposes a series of activities for capacity-building and training to tackle knowledge gaps.
- Mediterranean Blue Economy Stakeholder Platform (MED BESP): a regional networking platform for sharing knowledge and supporting the development of the Blue Economy.
- Regional Platform in Research and Innovation of the UfM: to make recommendations for the joint imple-

<sup>128</sup> European Commission. (n.d.). European Marine Observation and Data Network (EMODnet).

<sup>129</sup> UfM. (2018). *Blue Economy in the Mediterranean*.

mentation of research priorities while addressing issues concerning science, technology and innovation.

- Copernicus Marine Service: it provides free and open marine data and services to enable marine policy implementation, support Blue Growth and scientific innovation.
- PRIMA (Partnership for Research and Innovation in the Mediterranean Area): an EU programme for research and innovation solutions in the Mediterranean region.
- UNIMED (Mediterranean Universities Union): it carries out projects in different fields, ranging from governance issues at the university level to integration of refugees, as well as sustainable development, digitalisation, employability and intercultural dialogue.
- EMUNI (Euro-Mediterranean University): a regional hub for higher education and research.

The BLUEMED initiative and its Strategic Research and Innovation Agenda have permitted the constitution of regional frameworks following a common strategy with the representation and participation of all Mediterranean regions. Although there are a large number of marine observatories (coastal and biodiversity data), socioeconomic observatories are still missing in the same amount. For instance, some marine observatories are the Copernicus Marine Service, the European Marine Observation and Data network and observatories from MedPan.<sup>130</sup>

## Pollution and marine litter

Marine litter is human-made, land or sea-borne, solid items that because of a lack of proper waste management end up in the coasts and seas. The Mediterranean Basin is highly affected by this problem in the environment, with an estimated 730 tonnes of plastic<sup>131</sup> entering the Mediterranean Sea every day; and from total floating marine litter, between 70 to 90% are plastics and microplastics.<sup>132</sup> Some of the main pollutants of the Mediterranean Sea are pesticides, hydrocarbons, marine litter, nutrients, heavy metals and Persistent Organic Pollutants (POPs). New mechanisms should be further designed to make sure that the Barcelona Convention and its Protocols are implemented and to reinforce national obligations. In addition, pollution monitoring programmes should be established at every national level.<sup>133</sup>

## GDP contribution and employment

A sustainable transition in the Mediterranean cannot be achieved without the action of both public and private actors, which will result in the creation of new jobs in the next decades in relation to the Circular Economy and waste management. Some concrete examples of these new work areas are sustainable packaging design, management of the product life cycle, green investment, and so on. Circular jobs will be created both in direct processes related to sustainable busi-

<sup>130</sup> Union for the Mediterranean. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

<sup>131</sup> UNEP/MAP and Plan Bleu (2020). *State of the Environment and Development in the Mediterranean.*

<sup>132</sup> Union For the Mediterranean. (2021). *Towards a Sustainable Blue Economy in the Mediterranean region.*

<sup>133</sup> Plan Bleu. (2020). *Blue economy in the Mediterranean: case studies, lessons and perspectives.*

ness models, products and processes, but indirect jobs will also appear in education and governmental spaces.<sup>134</sup> However, no figures were available at this stage.

Addressing marine litter through recycling presents an opportunity for developing Circular Economy practices. Notable initiatives include the MarGnet project, which converts marine litter into marine fuel, and Sea2see, which transforms recycled marine litter into optical frames and sunglasses. If these initiatives expand, they have the potential to foster upcycling and eco-design approaches, contributing to the development of a zero-waste economy.<sup>135</sup>

## Sustainability

The ecological problem posed by marine litter is evident, compromising the marine environment and biodiversity, but it also has an impact on economic sectors like tourism, fisheries and aquaculture. Sustainable seas are litter-free seas, with policies aiming at the prevention of waste ending up on shores and oceans, and the reduction of existing litter both coastal and at sea. SDG 14 “Life below water” tackles marine pollution and litter with target number 14.1 for the prevention and reduction, by 2025, of marine pollution “from land-based activities, including marine debris and nutrient pollution.” And SDG 12 revolves around the adoption of circular practices in the economy to achieve a production and consumption system that prevents or reduces waste.

Pollution prevention requires social awareness but also effective coordination at all levels of government, with effective accountability to ensure that waste disposal in the sea is sanctioned. And because marine litter is not affected by national borders, regional cooperation is the only guarantee that the problem is mitigated through cross-border actions against marine litter. Other policy pathways that can bring about sustainability in this sector are better litter data collection and enhanced knowledge on leakages.

## Cooperation initiatives

Regional structures and collaboration projects on pollution and marine litter are spread in different Mediterranean areas, while sub-regional frameworks and initiatives are mostly located in the northern area of the Mediterranean.<sup>136</sup> A lack of capacity-building and R&I has been identified, with the exception of some northern or southern countries. Moreover, the project capitalisation is mostly located in the north and collaborative projects appear to be slightly more distributed across the region.

### Regional initiatives:

- UfM Ministerial Declaration on Environment and Climate Change: see “Marine renewable energies” chapter.
- Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean to protect the marine environment and

<sup>134</sup> CPMR Intermediterranean Commission and MedWaves. (2022). *A Circular Blue Economy for the Mediterranean: Current practices and opportunities*. Interreg MED Blue Growth Community project and SwitchMed Programme.

<sup>135</sup> CPMR Intermediterranean Commission and MedWaves. (2022). *A Circular Blue Economy for the Mediterranean: Current practices and opportunities*. Interreg MED Blue Growth Community project and SwitchMed Programme.

<sup>136</sup> Union for the Mediterranean. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy*.

the coastal region of the Mediterranean Sea.

- Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC): it assists the Mediterranean coastal states in the prevention of and response to marine pollution from ships.
- Mediterranean Node on Marine Litter: a Mediterranean network to tackle marine litter.
- BLUEMED initiative: Endorsed by all the countries of the EU and member countries of the UfM, it aims to advance a shared vision for a more healthy, productive, resilient, better known and valued Mediterranean Sea.

#### **Sub-regional initiatives:**

- Strategy for Plastics in a Circular Economy: communication from the EC.
- EU Marine Strategy Framework Directive: European directive to protect the marine ecosystem and biodiversity upon which our health and marine-related economic and social activities depend.
- EU Directive on the reduction of the

impact of certain plastic products on the environment: European directive to tackle plastic pollution.

- EU Single-Use Plastics Directive: European directive to prevent and reduce the impact of certain plastic products on the environment, in particular the marine environment, and on human health.
- EU4Ocean Coalition: it contributes to awareness of and engagement in the sustainable management of ocean and seas.
- Mediterranean Sea Basin Lighthouse: to support the rolling out of a “lighthouse” within the Mediterranean Sea Basin and provide services ensuring the development and deployment of innovative solutions addressing the objectives of the Mission Ocean.

#### **Transnational projects:**

Plastic Busters MPAs (North Med); COMMON (Regional); Plastic Busters CAP (Regional); Marine Litter MED II (South Med); ACT4LITTER (North Med); Water and Environment Support (WES) in the ENI Southern Neighbourhood Region (South Med).

# **Regional challenges, resilience capacity and governance mechanisms**

Although the Mediterranean region shares common challenges related to the climate and environmental crisis, the capacity to address the impacts of environmental and socioeconomic shocks widely differ from one country to another. The Mediterranean countries suffer similar climate events provoking wildfires, droughts and flooding, coastal erosion, high urbanisation, and touristic pressure. Moreover, Mediterranean economies still largely depend on intensive carbon-based industries and on unsustainable material consumption. Nonetheless, there are still big differences between sub-regions in levels of human development, demography and environmental protection.<sup>137</sup> Consequently, resilience and adaptive capacities towards climate change differ between sub-regions. The aim of this chapter is to discuss some of the sub-regional differences in the Mediterranean Basin in order to assess the specific challenges that sub-regions face and their capacities in terms of the implementation of a sustainable Blue Economy.

## Regional challenges

In this chapter the cluster of countries is the one used commonly by the EU and the UfM to group Mediterranean countries based on coherent socioeconomic characteristics (see annex for more details).

### Northern Mediterranean Countries (NMCs)

In the EU, about one third of all citizens live within 50 km of the coast, which accounts for 200 million citizens in the EU

living in coastal regions or islands.<sup>138</sup> The Blue Economy is an important segment of the European economy and it employs approximately 4.5 million people in sectors that are related to oceans, seas and coasts.<sup>139</sup> Apart from the traditional Blue Economy sectors (transport and ports, fishing, shipping, energy, etc.), other innovative Blue Economy sectors are emerging and growing, such as biotechnology, renewable ocean energies and desalination.

The EU countries have national adaptation strategies or plans for climate change and a wide range of funding opportunities and instruments exist to support its transition. In addition, the EU has ambitious environmental objectives (European Green Deal), which are to reduce greenhouse gas emission by at least 55% of 1990 levels by 2030 and to become climate neutral by 2050. Demographic dynamics in the Northern Mediterranean are constituted by an aging population, a low fertility rate, and a smaller share of active population than in other sub-regions. NMCs have 67%<sup>140</sup> of renewable water resources in the Mediterranean Basin.

NMCs are advancing towards renewable energies by diversifying their energy mix in a gradual manner towards renewable energies. Moreover, they are also trying to improve energy efficiency. Additionally, most MPAs are located in the Northern Mediterranean. Only few of them can be found in the Southern Mediterranean, such as in Lebanon, Morocco, Algeria and Tunisia.<sup>141</sup>

<sup>137</sup> UNEP/MAP and Plan Bleu. (2020). *State of the Environment and Development in the Mediterranean*.

<sup>138</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU*.

<sup>139</sup> Idem.

<sup>140</sup> UMAP and Plan Bleu. (2020). *State of the Environment and Development in the Mediterranean*.

<sup>141</sup> MEDPAN. *Cartography of Marine Protected Areas in the Mediterranean*: <https://medpan.org/en/annuaire/carte>

### Southern and Eastern Mediterranean Countries (SEMCs)

Southern and Eastern Mediterranean Countries (SEMCs) face major vulnerabilities towards climate change and their adaptation capacities are lower than in Northern countries. Thus, the Nationally Determined Contributions (NDCs) and Intended Nationally Determined Contributions (INDT) include mitigation and adaptation actions in SEMCs.<sup>142</sup>

The lack of economic diversification and the trade and budget deficits shows major difficulties in achieving economic product competitiveness. Nevertheless, GDP growth rates are higher in SEMCs than in NMCs.

SEMCs demographics' are characterised by a higher population growth than in the Northern ones, and a major share of young and active population. When considering the Human Development Index, there are still existing gaps in terms of gender discrimination and access to labour markets, youth unemployment and education. Although improvements have been made, the Human Development Index of SEMCs is still minor compared to the NMCs.

The current high density rates of population in coastal areas combined with environmental risks provoke major challenges in SEMCs as the adaptive and monitoring capacities are still lower than in NMCs. The unbalanced distribution of renewable water resources in the

Mediterranean, 180 million<sup>143</sup> people from SEMCs suffer from water scarcity (<1,000 m<sup>3</sup> capita-1 yr-1). Most of the SEMCs still need major support to achieve gradual and successful energy transitions towards renewable energies. In this regard, major levels of funding, capacity-building and technology transfer are needed.

### Middle East and North Africa (MENA)<sup>144</sup>

Many countries of the MENA region have coastlines in the Mediterranean Sea. During the last decades, effects of climate change have been perceived in the region with extremely high temperatures, extreme phenomena (droughts, floods and big storms), coastal erosion, water scarcity, food insecurity, land degradation and desertification. The climate risks are a threat multiplier in the region and lead to greater inequalities. Moreover, the impact of climate change in the region (for example, water, food and resource shortages, the impact on local means of subsistence, unsustainable use of resources) may aggravate issues of human insecurity, poverty, hunger, public health, instability, conflict and climate migration.<sup>145</sup> Some of the sectors of the region most sensitive to climate change are agriculture, water, energy, tourism and infrastructure.

The region still has a strong dependency on fossil fuels (oil and gas trade), although it holds the potential to develop a strong renewable energy industry. For in-

<sup>142</sup> Idem.

<sup>143</sup> MedECC. (2020). *Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report.*

<sup>144</sup> In accordance with the World Bank geographical division, the MENA region includes the countries of Algeria, Bahrain, Djibouti, Arab Republic of Egypt, Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, United Arab Emirates, West Bank and Gaza, Republic of Yemen.

<sup>145</sup> World Bank. (2020). *Middle East and North Africa Climate Roadmap.*

stance, solar and wind energy could create sustainable jobs in the development and management of installations of renewable energy. Furthermore, the region has the potential to adapt and mitigate climate change through sustainable mobility, more resilient and less pollutant food and agriculture systems, and carbon sequestration through green and forest areas. Most of the NDC contributions of MENA countries include different scenarios depending on external funding. In addition, the adaptation measures determined in the NDCs of MENA countries in many cases depend on external economic support of other countries.<sup>146</sup>

Responses to climate change in the MENA region require international cooperation and proper funding for adaptive measures. Blue Economy could be key to increase resilience in coastal areas. It could contribute to adapting coastal economies by developing more resilient Blue Economy sectors, increasing marine conservation, adapting coastal cities, and gathering data to measure sea level rise and coastal erosion.

## Cooperation and governance mechanisms

Maritime and coastal activities of the Mediterranean countries have trans-boundary impacts, for which cooperation between countries is crucial. The governance of Blue Economy activities in the Mediterranean is characterised by a diverse amount of governance structures and institutional frameworks, which are shaped into associations, international organisations and networks. This institutional ecosystem can be divided into

different levels: international, regional and sub-regional.<sup>147</sup> These structures vary from networks and associations of various types to international organisations with a focus on the Mediterranean. The approaches of the different organisations differ as well, since some of them have a more global and holistic approach while others are focused on specific sectors.

During the last few decades, international cooperation and integration frameworks in the Mediterranean have presented a range of challenges. In the first place, political cooperation has been mostly based on ministerial conferences and parliamentary meetings, organised by IOGs such as the UfM or the Parliamentary Assembly of the Mediterranean, or bilaterally by Mediterranean countries such as for the Summit of the Two shores (France, 2019) or the Forum mondial de la mer (Tunisia, annual).

Moreover, cooperation has been strongly focused on security and migration challenges, overlooking other opportunities for collaboration. In the field of economy, several trade agreements have been signed and in some cases tariffs have been pulled apart from current free trade agreements. Nonetheless, there are still strong barriers to trade in the region, such as subsidies. It is remarkable that Euro-Mediterranean regional integration has not been consolidated yet.<sup>148</sup>

## Sea basins governance

Among the many necessary areas for cross-border cooperation between Mediterranean countries, maritime spatial planning (MSP) is crucial to reach common

<sup>146</sup> UNFCCC. National Adaptation Plans

<sup>147</sup> Union for the Mediterranean. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

<sup>148</sup> IEMed. (2022). *2022 Mediterranean Yearbook.*



strategies to balance economic and environmental needs. According to the European Spatial Planning Platform,<sup>149</sup> the Mediterranean Basin can be divided into the Western and Eastern Sea Basins of the Mediterranean.

### Western Mediterranean Sea Basin

The Western Mediterranean Sea Basin includes the Mediterranean coasts of Spain, France and Malta, as well as the portion of Italian coastlines along the Tyrrhenian Sea and Strait of Sicily. They share the sea basin with Morocco and Algeria.<sup>150</sup> This region has a consolidated touristic activity, as well as a productive sector of goods transport, fisheries and aquaculture. The main environmental pressures in this region are overfishing, biodiversity loss, waste, as well as air and water pollution from the industrial sector. Western Mediterranean Sea Basin countries have cooperated in terms of marine spatial planning through projects such as Supporting Maritime Spatial Planning in the Western Mediterranean Region (SIM-WESTMED) or Areas Marinas Protegidas del Mediterráneo (AMPAMED) or through the working group (IMP-MED).

### Eastern Mediterranean Sea Basin

EU countries such as Italy, Slovenia, Croatia, Greece and Cyprus and non-EU countries like Albania, Montenegro, Bosnia-Herzegovina (with coasts on the Adriatic Sea), Turkey, Syria, Lebanon, Israel, Gaza Strip, Egypt, Libya (with coasts on the Aegean and/or Levantine Seas) are part of the Eastern Mediterranean Sea Basin. They share common challenges such as the exploitation risks of submarine

gas and oil resources, overfishing, safety at sea, marine litter and environmental conservation, among others. Those countries are cooperating on Marine spatial planning through the EU Strategy for the Adriatic and Ionian Region (EUSAIR), Cross Border Cooperation for Marine Spatial Development (THAL-CHOR I and THAL-CHOR II), ADRIPLAN or the Supporting Maritime Spatial Planning in the Eastern Mediterranean project (SUPREME).

### Regional intergovernmental frameworks

Different international frameworks and multilateral organisations are working on issues that are related to the development of a sustainable Blue Economy in the Mediterranean Basin.

#### Union for the Mediterranean (UfM)

The UfM is an intergovernmental Euro-Mediterranean organisation that brings together 16 SEMCs and the 27 countries from the EU with the aim of promoting and enhancing dialogue and cooperation in the Euro-Mediterranean region. The UfM launched after its first ministerial meeting on the Blue Economy in Brussels (2015). The 2nd UfM Ministerial Declaration on Blue Economy published in 2021 sets the establishment of a Blue Economy Working Group; a Mediterranean Blue Economy Stakeholder Platform; the initiative for the sustainable development of the Blue Economy in the western Mediterranean' (WestMED); the BLUEMED initiative; and a technical assistance facility to support regional policy dialogue on Integrated Maritime Policy.

<sup>149</sup> European Marine Spatial Planning Platform. (n.d.). European Sea Basins.

<sup>150</sup> European Marine Spatial Planning Platform. (n.d.). European Sea Basins.

In regards to governance strategies in the Mediterranean, the 2021 UfM Ministerial Declaration on the Blue Economy highlights the need to reinforce dialogue, coordination, partnerships among UfM members and other stakeholders. From the existing initiatives, it recognises as examples the WestMED and the EU-SAIR as great cooperation initiatives for the Blue Economy. When it comes to innovation, skills, careers and employment, the BLUEMED initiative for blue jobs and growth is presented as a successful practice. Other initiatives to be continued are the Startup Europe Mediterranean (SEMED) initiative, the Copernicus marine service, Blue Economy clusters and the Mediterranean Blue Economy Stakeholder Platform. For the sustainability of maritime transport and ports, ministers outlined the establishment of the WestMED Technical Group on Sustainable Transport and Green shipping and called for a greater level of investments towards carbon-neutrality and participation in joint projects.

According to the OECD,<sup>151</sup> since the start of the Barcelona Process, the integration among the Mediterranean countries has progressed but stays below its potential in terms of capacities and resources. The collaboration in terms of trade has advanced, mostly in intermediate and final products. Nevertheless, there are some challenges including non-tariff barriers, a variety of trade agreements, the lack of services, trade regulation and inadequate transport infrastructure, amongst others. Regarding financial integration in the Euro-Mediterranean region, some of the sub-regions still face lower levels of financial investment. Regarding infrastructure connectivity, the Southern and Eastern

regions of the Mediterranean have not achieved major levels of integration.

## UNEP-MAP

The MAP of the Barcelona Convention system works with the Contracting Parties towards the goal of achieving sustainable development. MAP was created in 1975 to become the institutional framework for cooperation in marine and environmental matters with the convention of the Protection of the Mediterranean Sea against Pollution. In order to include new concepts of the Rio Conference of 1992, Contracting Parties adopted the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) in 1995.

Within the Barcelona Convention, the Mediterranean Commission on Sustainable Development (MCSD) is formed by 40 members: 22 represent the Contracting Parties and the 18 others are constituted by rotating representatives from a wider community. The MCSD contributed to the formulation and implementation of the Mediterranean Strategy for Sustainable Development (MSSD) 2016-2025 currently under revision. The objective number 5 of the strategy is Transition towards a green and blue economy and emphasis on a model based in on the Circular Economy and the decoupling of prosperity and the use of marine resources. Moreover, the objective number 7 consists of Improving governance in support of sustainable development and it is structured in five main pillars:

- Enhance international dialogue and cooperation
- Promote stakeholder engagement to

<sup>151</sup> OECD. (2021). Regional Integration in the Union for the Mediterranean: Progress Report, OECD Publishing.

secure inclusive processes and integrity in decision-making

- Promote implementation and compliance with environmental obligations and agreements; policy coherence based on inter-ministerial coordination
- Promote education and research
- Enhance regional capabilities for information management

The Medium-term strategy 2022-2027 of UNEP/MAP has developed 4 thematic programmes, some of them directly related to the Blue Economy:

- Towards a Pollution and Litter Free Mediterranean Sea and Coast Embracing Circular Economy
- Towards Healthy Mediterranean Ecosystems and Enhanced Biodiversity
- Towards a Climate Resilient Mediterranean
- Towards the Sustainable Use of Coastal and Marine Resources including Circular and Blue Economy

## Sub-regional initiatives in the Mediterranean

Sub-regional organisations and frameworks are very important to facilitate synergies and enhance coordination, exchange of good practices and knowledge transfer. There are a large number of sub-regional institutions and frameworks with the objective of promoting sustainable development in the Mediterranean, amongst which we find structures that allow countries from different sub-basins in the Mediterranean to cooperate.

### The 5+5 Dialogue

The 5+5 dialogue, established in 1990, is

an intergovernmental cooperation initiative that includes five countries from the northern shore (Malta, Italy, France, Spain, Portugal) and 5 from the southern shore (Mauritania, Morocco, Algeria, Tunisia, and Libya). Through the “Commitments for a new ambition in the Mediterranean”, signed in 2019 at the “Summit of the Two Shores, Mediterranean Forum”, the countries concreted their ambitions into projects and provided a collective response to shared challenges in the Mediterranean. A key component of the 5+5 Dialogue are the series of Ministerial Conferences of Ministers of Foreign Affairs. The forum has expanded its themes of work towards renewable energies, transport, environment, tourism, water issues, and the Blue Economy.

### Arab Maghreb Union

The Arab Maghreb Union (AMU) is a cooperation initiative based on the Marrakesh Treaty of 1989, among the countries that make up the Maghreb region: Algeria, Libya, Mauritania, Morocco and Tunisia. These countries are also the southern members of the 5+5 dialogue. Its main objectives are to enhance cooperation, support the development of common policy and its coordination, common economic development and political stability in the areas.

### EU strategy for the Adriatic and Ionian region (EUSAIR)<sup>152</sup>

The EU developed the EU strategy for the Adriatic and Ionian region (EUSAIR) that involves five Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Ser-

<sup>152</sup> Communication from the European Commission on the EU Strategy for the Adriatic and Ionian Region, COM(2014)357

bia) and four EU countries (Croatia, Greece, Italy, Slovenia). Some of the objectives of the initiative are developing a Blue Growth and sustainable tourism, connectivity and environmental quality.

### **Western Mediterranean (WestMED) initiative<sup>153</sup>**

The WestMED initiative was initiated in 2017 by five EU member states (France, Italy, Portugal, Spain and Malta), and five southern partner countries (Algeria, Libya, Mauritania, Morocco and Tunisia). Their main goals are to increase marine safety and security, promote sustainable jobs and growth related to the Blue Economy and preserve the Mediterranean biodiversity and ecosystems.<sup>154</sup> Its Sea Basin Strategies Assistance Mechanism offers technical assistance to the Atlantic Ocean, Black Sea, and the Western Mediterranean.

The last assessment of the WestMED initiative<sup>155</sup> (see annex) shows that the initiative has been a useful intergovernmental platform to support the development of a sustainable Blue Economy in the Mediterranean. The main identified strengths of the initiative are dialogue and soft diplomacy; cooperation and partnerships; project support; knowledge sharing; technical working groups and alliances and broader Mediterranean cooperation. However, various aspects of the initiative could be further improved such as the platform's visibility and applying more adequate indicators to measure advancements and progress.

## **Other initiatives, programmes and partnerships**

### **MED 2050**

This Med2050 project, coordinated by Plan Bleu, has the objective to co-create realistic transition paths and action plans towards sustainable development in the Mediterranean. It addresses the long-term issues on climate change as well as ecosystems, economy and social possible ruptures and their consequences. It aims to define a roadmap based on a prospective data analysis, comparing and sharing different visions for the Mediterranean of 2050, designing future scenarios and co-developing transition paths.

### **Blue Med Initiative**

The Blue Med Initiative was jointly developed by Cyprus, Croatia, France, Greece, Italy, Malta, Portugal, Slovenia, and Spain and facilitated with the support of the EC in 2014. It was afterwards adopted by the UfM. It consists of a political initiative that aims to promote Euro-Mediterranean relations and advance in reaching a common vision for the Mediterranean Sea and increasing its resilience while promoting social well-being and economic development.

### **Bologna Charter**

The Bologna Charter is the European Regions Charter for coastal protection and for the promotion of a network of a European Interregional Observatory for

<sup>153</sup> Communication from the European Commission on WestMED, COM(2017)183.

<sup>154</sup> UfM. (April, 2023). Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.

<sup>155</sup> European Commission. (2023). *Report of the European Commission on the implementation of the Western Mediterranean initiative.*

the defence of Mediterranean coasts. Its objective is to strengthen the role of coastal administrations in the areas of coastal protection, integrated management of coastal and marine systems and adaptation to climate change. 28 administration or territorial bodies have already joined the Bologna Charter.

### **Blue Mediterranean Partnership**

The EBRD, the EIB and the UfM launched the [Blue Mediterranean Partnership](#) at the COP27 climate change conference in Sharm el-Sheikh. It intends to support the development of a sustainable Blue Economy in the EU's Southern Neighbourhood countries in the Mediterranean and to mobilise finance to support policy reforms and Blue Economy projects, firstly in Egypt, Jordan and Morocco.

### **SwitchMed initiative**

The [SwitchMed initiative](#) is an EU funded programme to achieve a Circular Economy in the Southern Mediterranean through a transition in production and consumption. SwitchMed initiative provides Circular and Blue Economy tools and services for the private sector and facilitates exchange of information and policy development.

### **EU Interreg EURO-MED Programme**

The [Governance Axis of the Interreg EURO-MED Programme](#) funded by the EU consists of a platform of governance that aims to strengthen multi-lateral coordination to respond to common challenges in the Mediterranean. The Euro-Med approach to governance as a dialogue-based governance approach could be replicated to support a better governance of the Mediterranean.

### **ARLEM (Euro-Mediterranean Regional and Local Assembly)**

This initiative, started in 2010, was promoted by the European Committee of the Regions. It consists of an Assembly of local and regional representatives from the EU and its partners in the Mediterranean for political dialogue and inter-regional cooperation.

### **Conference of Peripheral Maritime Regions**

The [Mediterranean Commission of the Conference of Peripheral Maritime Regions \(CPMR\)](#) is formed by sub-national levels of nine EU countries and others, which are Albania, Cyprus, France, Greece, Italy, Malta, Morocco, Spain and Tunisia. This commission is focused on Euro-Mediterranean dialogue and cooperation between territories.

### **Knowledge exchange platforms**

The main Blue Economy platforms in the Mediterranean are key for the development of a collaborative approach of the Blue Economy in the Mediterranean.

### **Blue Economy Stakeholder Platform**

The [Blue Economy Stakeholder Platform \(MedBESP\)](#) is an initiative of the UfM that consists of a regional networking platform for knowledge and experience sharing in the development of the Blue Economy at regional and national level.

### **European Maritime Spatial Planning Platform**

The [European Maritime Spatial Planning Platform](#) is the technical support mech-

anism provided by the EC for the implementation of MSP in EU countries, with a specific [section](#) for Mediterranean EU countries.

## Key learnings

The Mediterranean Basin has several governance structures and frameworks that are contributing to some specific aspects of the Blue Economy at different geographical and sectoral levels. However, achieving cross-sectoral and inter-organisational coordination is important to maximise the potential of the existing initiatives that are sometimes diverging or competing. Hence, searching for greater synergies and complementarities among the current organisations operating in the Mediterranean is essential for the development of the sustainable Blue Economy.

Sub-regional cooperation is highly developed in the West and Adriatic and Ionian Regions, but not in the Eastern regions of the Mediterranean.<sup>156</sup> There is still much room for the development of sub-regional mechanisms of Blue Economy cooperation in the Eastern area of the Mediterranean Sea. For instance, both the WestMED and EUSAIR include strategies cooperation frameworks that allow the collaboration of both regional and national authorities in the field of the Blue Economy. In contrast, common Blue Economy governance structures in the

Eastern Mediterranean are still missing, which obstructs the transnational coordination of Blue Economy stakeholders.

The identification of replicable practices and successful examples of cooperation in the Mediterranean can be valuable to develop more effective systems. In this regard, the UfM<sup>157</sup> identified WestMED and EUSAIR initiatives as successful examples of coordination towards the achievement of a sustainable Blue Economy. Some key elements identified in these initiatives are the establishment of Technical Groups dedicated to specific areas of work and their geographical scope, which allows them to focus on a specific part of the Mediterranean and to better coordinate the joint work. UfM ministers also recognised the value of the Euro-Mediterranean Regional and Local Assembly (ARLEM), the Conference of Peripheral Maritime Regions (CPMR) Mediterranean Commission and the network of Mediterranean local governments (MEDCITIES) to foster the engagement of local authorities in the development of the Blue Economy. UNEP/MAP is also a relevant institutional framework to discuss the environmental issues related to the protection of the Mediterranean Sea and coastal areas, and develop a common regional approach towards the Blue Economy development through the Mediterranean Strategy for Sustainable Development (MSSD).

<sup>156</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

<sup>157</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

# **Policy challenges and opportunities for a sustainable Blue Economy**

This chapter resumes the main policy challenges identified during the previous analysis that need to be addressed in order to effectively foster a sustainable Blue Economy in the Mediterranean region. It also reviews the opportunities that arise from implementing greater sustainability in the Blue Economy sectors.

## Challenges

### Common definitions and shared understanding

Currently there are various terminologies to refer to the economic activities in coastal and marine ecosystems that are not consistent and coherent. Traditionally, the Blue Economy has relied on the focus of economic growth as its main driver, over social equity and environmental sustainability. The lack of consensus on a clear definition of sustainable Blue Economy in policies and academia causes problems of implementation as the term can be (and is) understood differently by the different actors or countries. An internationally accepted definition of what constitutes the (sustainable) Blue Economy is needed to set a common path for the development of sustainable Blue Economy activities in the Mediterranean. Still, the problem is not only semantic, but requires identifying the “core” principles of the Blue Economy and shared common guidelines for implementation. Thematic regional and sub-regional dialogues, driven by existing political, environmental or economic fora (UfM, 5+5, WestMed, MCSD, etc.), would help set a common path towards sustainable Blue Economy activities and agreed performance indicators.

### Skills and labour gaps

Many sectors in the Blue Economy have difficulties finding adequately qualified and skilled professionals, which hampers

their growth, and are also facing the so-called “brain drain”. It is crucial to match education provision and labour market needs, promote upskilling and reskilling schemes (specially in SMEs), improve communication and cooperation between education and industry; foster the attractiveness and awareness of career opportunities in the Blue Economy, and improve the ocean literacy culture. Hence, the public budget dedicated to “Blue vocational training” should be increased adequately, with the support and involvement of (private and public) Blue Economy actors (shipping companies, ports, local or regional authorities, etc.) that have the financial capacity and labour needs to co-design and co-finance those blue training programmes.

### Knowledge production and monitoring schemes

The lack of knowledge and monitoring tools on the use of marine resources hinders the development of a sustainable Blue Economy, creates uncertainties and deters public or private investment. For instance, marine living resources are often poorly monitored in countries that lack research capacity, and therefore are not valued properly. Knowledge platforms, data and predictive analytics are therefore basic tools to design the adequate policies and strategic planning and to identify the best indicators to develop the maritime sectors. Countries need to collect, integrate and maintain data to monitor the biophysical characteristics of their coastal ecosystems and correctly assess the value of their marine resources, but also be aware of synergies and trade-offs between Blue Economy sectors. They should also develop and integrate sustainability indicators to inform stakeholders on externalities and ensure efficient and environmentally-friendly Blue Economy activities. Marine and coastal spatial planning, digital mapping and sur-



veillance schemes are useful tools to develop a sustainable Blue Economy. Enhanced cooperation, joint research projects and knowledge sharing can also alleviate the knowledge gap between countries.

## Gender barriers

The Blue Economy in the Mediterranean presents big opportunity gaps between women and men. Women tend to be the lowest paid and skilled, are underrepresented in management positions and usually face more difficulties than men to access jobs. Several sectors of the Blue Economy are still considered male-dominated sectors, and gender is strongly influenced by national cultural frameworks. In addition, data on the distribution and roles of women across the Blue Economy is limited and not sufficiently documented. Still, there are growing gender-sensitive strategies and initiatives in place to tackle the gender gap, like the EU projects WINBLUE and WINBIG on women and the Blue Economy. And the UfM identifies policies that address this gap by focusing on skills and leadership training, participation, access to technology, gender-sensitive legal and macroeconomic policies, and financial and operational support of grassroots women's organisations.

## National strategies and policy coherence

Many Mediterranean countries have national strategies for sustainable development, but in some countries these strategies are incomplete or outdated and they lack clear objectives, indicators to measure progress, appropriate budget for implementation, and are not widely com-

municated to all citizens.<sup>158</sup> At a national level, limited policy integration (e.g., tourism and environmental policies) and insufficient collaboration among actors can lead to conflicting policies and strategies. In this regard, the development and implementation of national Blue Economy strategies aligned with the core principle of a sustainable Blue Economy are key to devise clear roadmaps against unambiguous performance indicators. There are already national Blue Economy strategies that may provide lessons learnt and could be replicated in other countries.

## Governance improvement

Regional dialogue is key to enhancing the Blue Economy as it strengthens the design and implementation of public policies, provides enabling regulatory frameworks, allows the exchange of successful strategies and best practices, and ensures a vision based on common objectives, beneficial to all the parties involved. Also, joint international Blue Economy projects allow capacity development and the necessary involvement of the private sector and coastal communities across the region. But during the last decades, international cooperation and integration frameworks in the Mediterranean have been mostly based on political cycles, so there is still a need to reinforce dialogue, coordination and strategic partnerships between Mediterranean countries as well as enabling public-private collaboration schemes, investment and innovation. Certainly, the lack of stable governance structures hinders the adoption of a sustainable Blue Economy. Emerging sectors also bring new actors to the table, which poses a challenge in terms of readapting existing governance mechanisms.

<sup>158</sup> Fosse J, Petrick K. et al. (2016). *Towards a Green Economy in the Mediterranean. eco-union, MIO-ECSDE, GEC.*

## Regional cooperation

Current regional cooperation schemes are not dynamic and coherent enough to keep the pace of innovation in the Blue Economy sectors. There is a lack of trans-national projects and specific regulatory frameworks on Blue Economy sectors, especially in the southern region of the Mediterranean, which could be fostered more strongly by the UfM. For example, sub-regional tourism cooperation initiatives are mostly concentrated in the north-west of the Mediterranean. The marine renewable energies sector is not sufficiently consolidated across the region, while the EU holds the majority of projects and regional frameworks in this sector. As for aquaculture activities, there is a need to build a governance framework in the southern shore of the Mediterranean to trigger and make the most of the transfer of innovative techniques applied in the north, especially for off-shore aquaculture.<sup>159</sup>

## Climate change adaptation and resilience

The Mediterranean Blue Economy is very vulnerable to climate change, so the region needs to implement policies to address current and expected impacts like weather extremes, natural disasters and sea-level rise, among others. Adaptation policies for sea and coastal areas are well covered in literature, ranging from building and strengthening infrastructure that better withstands extreme weather conditions, early-warning systems, insurance mechanisms or protection for natural ecosystems. For this adaptation to be successful, it needs to be multi-stakeholder (with engagement of the public and private sectors, civil society and other relevant stakeholders) and multi-level

(international, national, sub-national and local), and gain consensus on the planning approach and the measures to implement.

It also needs an effective production and transfer of knowledge because adaptive measures may well be implemented across various regions and sectors according to a cost-benefits analysis. Adaptation action should be country-driven through national adaptation plans as a result of a participatory, gender-responsive and transparent process, considering vulnerable groups, communities and ecosystems, and based on best available science and also traditional knowledge (indigenous and local practices). This is key to ensure the sustainability and future of the Blue Economy, and SEMCs will need support to adequately adapt to the impact of climate change, which can come through funding, capacity-building, cooperation and technology transfer.

## Awareness and capacity-building

SMEs, industry and private investors often prioritise short-term gains and, therefore, an overexploitation of marine resources, over long-term sustainability. They do not always see clearly the benefits of a sustainable Blue Economy. Public policy and legally-binding mechanisms have created the framework for an orderly development of a sustainable Blue Economy, but it is important as well to establish common standards to motivate businesses to adopt blue investment principles. Even though there is a favourable trend towards sustainability, more awareness and understanding of sustainable practices is needed to overcome limited access to information tailored to their sector and context. If stakeholders do not

<sup>159</sup> FAO (2022). *The State of World Fisheries and Aquaculture 2022*.

understand which solutions can be adopted and how to implement them, they will be reluctant to shift towards sustainability and this could hinder the transition. For example, further collaboration between industry and academia can facilitate the application of innovative techniques in productive processes.

## Financial gaps

Countries in the southern region face more difficulties in terms of access, capacity and awareness than their northern neighbours, where the funding tends to concentrate.<sup>160</sup> For this reason, international climate and water finance represents a substantial opportunity for fostering the development of a sustainable Blue Economy in the Mediterranean region. In the year 2019, international climate finance commitments amounted to 9.1 billion, equivalent to 11% of global financial flow. Of this total, bilateral finance accounted for 37%, while multilateral climate funds only made a 2% contribution.<sup>161</sup> While climate commitments offer a great opportunity for enhancing a blue sustainable economy, it must be complemented by the private sector. Currently, the private sector's involvement remains limited, and deficiencies in monitoring mechanisms hinder governments from making informed decisions when financing climate projects.<sup>162</sup> Therefore, it is imperative to boost regional cooperation while also encouraging the use of new economic instruments to leverage environmental protection. Some examples of innovative financial tools are the [BlueInvest initiative](#) from the EC and the EIF, which has directed funding to southern

countries, and the mobilisation of private capital through blue bonds. Financial institutions should explore new funding mechanisms and pilot actions to assess their feasibility and determine which are better suited for the region.

## Green (and blue) fiscal policy

It is evident that fiscal policies have significant potential for levelling the playing field between linear and circular business models by pricing in environmental externalities. The existing linear economy model does not include negative social and environmental externalities in cost-benefit analysis, implying that damaging products remain price competitive. Hence, green and blue fiscal policy represents a key instrument in complementing regulatory efforts by bridging the difference between standard pricing and the actual cost of products, thereby stimulating greater demand and supply for sustainable, circular solutions.<sup>163</sup> One measure that has already been experimented with in some European countries, and could be further expanded, is the adoption of life-cycle costing. In addition to purchase price and operating costs, life-cycle costing takes into account true pricing related to environmental externalities, provided they can be monetised and monitored, as well as costs associated with end-of-life disposal.<sup>164</sup>

Additionally, to bridge financial gaps among (and within) Mediterranean countries and promote effective functioning markets for a sustainable Blue Economy, it is imperative to establish robust economic and coherent fiscal incentives. Fiscal pol-

<sup>160</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

<sup>161</sup> UfM. (n.d.). *Climate Finance.*

<sup>162</sup> UfM. (2018). *Climate Finance flows in the SEMed region in 2018.*

<sup>163</sup> World Bank. (2022). *Squaring the circle: Policies from Europe's Circular Economy Transition.*

<sup>164</sup> World Bank. (2022). *Squaring the circle: Policies from Europe's Circular Economy Transition.*

icies have to complement policy cohesion efforts, creating a business and market environment conducive to a sustainable Blue Economy. Green (and blue) fiscal reforms can realign economic incentives away from traditional linear models and towards circular principles.<sup>165</sup> In the transition to a blue circular economy, initial steps should involve fiscal reforms that leverage existing tax expenditure measures, such as tax benefits, exemptions, deductions, and allowances within major taxes like VAT and corporate tax. These measures have been predominantly used for non-environmental purposes, but there is an opportunity to repurpose them to support circular activities and greener business models.<sup>166</sup> This transformation entails strengthening taxes on raw materials and on waste management, encouraging the substitution of raw materials with secondary and recycled products, which are often more expensive. Furthermore, a reconsideration of Value Added Tax (VAT) reductions could be undertaken to prioritise greener business models over linear ones. This adjustment would involve lowering taxes on reused and recycled materials, aligning fiscal policies with sustainability objectives. These measures should be complemented with the elimination of fossil fuel subsidies, both direct and indirect, which, despite growing efforts, are still prevalent in the region.<sup>167</sup>

## Opportunities

### Digitalisation and Circular Economy

In many ocean sectors, digitalisation is taking place at a rapid pace, especially since COVID-19, which will demand new

technical and soft skills to manage digital initiatives and changes (e.g., consumers are expected to be more demanding with sustainability in tourism choices, including ecotourism in marine and coastal ecosystems). There is more willingness today to invest in emerging digital technologies and innovative solutions, for which the acquisition of specific skills is essential. Technology and digitalisation will enable circular economy practices so as to achieve greater efficiency and reduce risks in many sectors. For example, digital tools such as monitoring, ecosystem modelling and predictive analytics can serve as a means to optimise fishing operations. Moreover, the concept of a circular economy is gaining attention from both the public and the private sectors, like in the case of eco-design of products, repair and reuse of materials (for fishing nets) and the creation of value from waste (bioproducts from seafood waste, biogas production from fish waste, etc.).

### COVID-19 Recovery plans

The COVID-19 pandemic exposed the sensitivity of many sectors, which raised concerns about the need for more resilient economies to external factors, like overdependence from third countries, climate change impacts and the ecological crisis. The national recovery plans post COVID-19 have promoted the integration of environmental and social sustainability across sectors, with large amounts of subsidies and loans granted to support sustainable economic development, and the general perception is that there is a necessity to incorporate environmental sustainability and climate action in the re-

<sup>165</sup> World Bank. (2022). *Squaring the circle: Policies from Europe's Circular Economy Transition*.

<sup>166</sup> Vence, X.; López Pérez, S.J.L. (2021). *Taxation for a Circular Economy: New Instruments, Reforms, and Architectural Changes in the Fiscal System*. *Sustainability* 13, no. 8. <https://doi.org/10.3390/su13084581>

<sup>167</sup> World Bank. (2022). *Green Fiscal Reforms: Part two of Strengthening Inclusion and Facilitating the Green Transition*.

covery strategies of business models. With government investment in recovery from the pandemic, there are unprecedented opportunities and conditions for change in terms of funding availability, advantageous legal frameworks and facilitating policies for sustainability.<sup>168</sup>

## New governance mechanisms

Effective governance is essential to promote a sustainable Blue Economy, with adequate inclusion and empowerment of Blue Economy stakeholders to create ownership and, through the allocation of resources and funding, increase their commitment and engagement to sustainability. Stronger public-private cooperation will encourage investments, and innovations facilitated by the digital and ecological transition. Multi-stakeholders and multi-level collaborations will also help to address governance gaps and expand the role of local communities and civil society actors through citizen engagement and participatory democracy. Moreover, there are growing efforts to link academia and industry so that innovations are applied in a pre or fully industrial environment: companies benefit from forefront academic innovations, while researchers have access to funding opportunities. For example, Blue Economy clusters are an opportunity to establish mechanisms of dialogue and cooperation within the private sector (and with the public actors) to promote a sustainable Blue Economy.

## Blue job creation

Nowadays, the main employers of the Blue Economy in the Mediterranean are tourism and fisheries, but job opportu-

ities are also rising in sectors like blue biotechnology, green transport and port activities, fish processing, marine aquaculture, desalination and offshore renewable energy and hydrogen generation, and research and infrastructure (submarine cables, robotics). There is great potential for employment in these sectors, which will experience significant growth in the following decades across the Mediterranean, and governments, universities and the private sector should put in place policies to adequately harness this career creation, such as financial incentives, innovative educational plans, and reskilling and upskilling mechanisms.

## Climate and ecological transition

The road to net zero emissions has a potential to bring about many opportunities across sectors in the Blue Economy. Adaptation and transformation towards sustainable patterns will make maritime sectors more resilient, will create new jobs and help protect natural ecosystems. Sectors like maintenance activities and construction works in ports can be decarbonised by using renewable energy, off-grid storage to power tools and switching from diesel-powered machinery to electrified options. Sustainable tourism has the capacity to stimulate new high quality economic opportunities, create jobs and support the local communities that rely on the tourism industry, restore natural environment and promote the conservation of cultural heritages.<sup>169</sup> Marine aquaculture and fisheries, if managed in a sustainable way, have the potential to contribute to food security in the region while being a low-impact source of proteins.

<sup>168</sup> eco-union (2021). *Towards a Green and inclusive Recovery*.

<sup>169</sup> Balestracci, G., Sciacca, A. (2023). *Towards Sustainable Blue Tourism: Trends, Challenges and Policy Pathways*. *Blue Tourism Initiative*.

## Shift in market demand

Consumers are increasingly worried about the sustainability of the products that they purchase.<sup>170</sup> This is a crucial incentive for the industry to adopt sustainable practices and change their business models. A greater number of investors are looking for opportunities that support positive social and environmental impacts. The shift in market demand is a powerful tool to promote sustainable practices, but businesses face high costs when they seek to implement these (e.g., installing renewable energy sources or upgrading facilities to be more environmentally friendly).<sup>171</sup> They usually lack resources for such investments and/or qualified personnel, so it is important that public agencies help them identify opportunities for sustainable and innovative financing in order to bring about change and mitigate transition costs.

## Solidarity and Social Economy

The integration of the principles of the Social and Solidarity Economy (SSE) in the Blue Economy sectors offers an emerging framework for the Sustainable Blue Economy.<sup>172</sup> Usually working for and with local communities, the SSE aims to transform the society by integrating social and environmental criteria into its values, organisation and activities.<sup>173</sup> Often counter-cyclical in nature, it prevails as an alternative for tackling the economic, ecological, technological and demographic changes that threaten to reduce opportunities for decent

work<sup>174</sup>. At the conjunction of Social and Blue Economy, the Blue Solidarity Economy (BSE) pursues a comprehensive, intelligent, and sustainable use of marine and coastal resources through the principles of the SSE. The BSE can thus become the backbone for a sustainable, social, solidarity, inclusive and ecological Blue Economy in the Mediterranean in a variety of sectors (fisheries, tourism, transport, etc).

## Conclusions

It becomes evident that the path to achieving a sustainable Blue Economy in the Mediterranean region is marked by a dual landscape of challenges and opportunities. Challenges encompass the urgent need for a shared definition of a sustainable Blue Economy, addressing skills gaps and labour shortages, and the imperative to enhance knowledge and monitoring capabilities to inform decision-making. Simultaneously, tackling gender disparities, ensuring coherent national policies, strengthening governance structures, and promoting regional cooperation must be central priorities on policy agendas.

Within these challenges lie significant opportunities too. The integration of the principles of the circular economy and the Social and Blue Economy into the Blue Economy, coupled with the ongoing digital revolution, holds great potential to enhance the sustainability of blue economic activities. Similarly, the post-COVID-19 recovery plans and new governance mechanisms can potentially

<sup>170</sup> The Economist (2021). [An Eco-wakening: Measuring global awareness, engagement and action for nature](#)

<sup>171</sup> Rashed, Shah (2020). [The role of private sector in the implementation of sustainable development goals](#)

<sup>172</sup> Eco-union (2020). [Blue Solidarity Economy in Catalonia, Europe and the Mediterranean](#).

<sup>173</sup> United Nations (2014). [Social and Solidarity Economy and the Challenge of Sustainable Development](#)

<sup>174</sup> Borzaga, C., Salvatori, G., & Bodini, R (2019). [Social and Solidarity Economy and the Future of Work](#)

embed sustainability in Mediterranean countries' economic strategies, fostering innovation and job creation as a result. Finally, a pivotal role in this process is also played by the growing awareness of ecological risks due to climate change and the shifting market preferences towards sustainable production processes among consumers.

In conclusion, the outlined challenges and opportunities underscore the vital importance of coordinated efforts and collaboration among governments, private sector entities, and civil society. Consequently, a multi-level and multi-stakeholder approach is imperative to unlock the full potential of a sustainable Blue Economy in the Mediterranean region.





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- UNECA Blue Economy: <https://www.uneca.org/blue-economy>
- Marine Region Forum: <https://www.prog-ocean.org/marine-regions-forum/>
- Blue Solidarity Economy: <https://www.ecounion.eu/portfolio/economia-blava-solidaria-ebs/>
- World Bank Problue: <https://www.worldbank.org/en/programs/problue>
- ICZM platform: <https://iczmplatform.org/>

- UNEP/MAP: <https://www.unep.org/uneppmap/who-we-are/barcelona-convention-and-protocols>
- State of Environment & Development: <https://planbleu.org/en/soed-2020-state-of-environment-and-development-in-mediterranean>
- MedECC: <https://www.medecc.org/>



# Annex

## Blue economy financing mechanisms<sup>175</sup>

- UN Environment Programme Finance Initiative (UNEP-FI): Sustainable Blue Economy Finance Initiative
- INTERREG EURO MED programme 2021-27: strong focus on the Circular Economy, enhancing biodiversity and reducing pollution.
- The Neighbourhood, Development and International Cooperation Instrument (NDICI): EU financing instrument aimed to support such renewed regional partnership, amongst other funds.
- European Maritime, Fisheries and Aquaculture Fund (EMFAF)
- The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans)
- Horizon Europe,<sup>352</sup>
- The SwitchMed<sup>359</sup> initiative
- The new LIFE Programme
- The Switchers Fund
- UfM's smaller grants
- Traditional funding streams (such as grants and loans)
- Innovative financial instruments (blue bonds, equity, guarantees, etc.).
- The World Bank Group (WBG): PROBLUE
- Multilateral Development Banks (MDBs)
- The EU BlueInvest
- The European Investment Fund (EIF)
- Global Environment Facility (GEF)
- R20 Regions for Climate Action (Sub-national Climate Fund Initiative)

### Others

- Environmental Fund for Mediterranean Marine Protected Areas (MedFund)
- Women in the Blue Economy (European Commission)
- Black Sea Cross Border Cooperation
- Blue Sustainable Ocean Strategy
- BLUEBIO COFUND

<sup>175</sup> <https://medblueeconomyplatform.org/funding-blue-economy/>

- BlueCrowdMED
- BlueInvest
- BLUEMED Call for Start up Actions
- Civil Society Facility South
- COSME: Europe's programme for small and medium-sized enterprises
- Creative Europe
- Critical Ecosystem Partnership Fund
- Cross Border Cooperation within the European Neighbourhood Instrument - Mediterranean Sea Basin Programme 2014-2020
- EASME - Executive Agency for SMEs
- Erasmus + programme
- European Civil Protection and Humanitarian Aid Operations
- European Commission Blue Economy Window 2020
- European Commission - Annual work programme for grants and procurement
- European Investment Bank (EIB) and European Investment Fund (EIF)
- European Maritime and Fisheries Fund (EMFF)
- Fonds Français pour l'Environnement Mondial (FFEM)
- Galatea Blue Growth Accelerator
- Global Environment Facility - Small Grants Programme (GEF SGP)
- Horizon 2020
- Horizon Europe - Cluster 6
- Instrument for Pre-accession Assistance (IPA)
- Interreg Adriatic-Ionian, Interreg Balkian Mediterranean, Interreg Greece-Italy, Interreg IPA CBC Greece-Albania, Interreg Italy-Croatia, Interreg Italy-Malta, Interreg Marittimo- IT FR-Maritime, Interreg Mediterranean, Interreg SUDOE
- LIFE Programme
- Mava Foundation
- MedFund
- MedPAN
- Prince Albert II Monaco Foundation
- Swedish International Development Cooperation Agency - SIDA
- The SwitchersFund

- United Nations' Sustainable Blue Finance Initiative
- World Wide Fund For Nature

## **Relevant Blue Economy initiatives**

- Networks and communities
- Blue Growth Community
- Blue Med Community Portal
- Interreg Med - The Biodiversity Protection Knowledge Platform
- MED Sustainable Tourism Community
- PANORAMED Governance Platform
- UN Mediterranean knowledge platform - INFO RAC

## **MED CITIES**

Network of local governments with the objective of representing the voice of citizens by their local authorities. Its main four fields of activity are the following: development and implementation of projects, building expertise through knowledge exchange, multilateral cooperation between municipalities and political participation in regional and international processes.

## **Maritime clusters**

- Bulgaria: Marine Cluster Bulgaria
- Croatia: Intermodal Transport Cluster
- Italy: Distretto della pesca COSVAP, Maritime Technology Cluster, Italian Maritime Cluster, Blue Italian Growth, Assoittica Italia
- France: Pôles Mer Provence Alpes- Côtes d'Azur (PACA, Sud), Pôles 'Mer Bretagne' (ouest)
- Malta: Malta Marittima
- Morocco: Agadir Haliopole, Cluster industriel pour les services environnementaux (CISE), L'Association Professionnelle des Agents Maritimes
- Romania: Union of Romanian Inland Ports
- Spain: Spanish Maritime Cluster

- The Netherlands: Rotterdam Cluster
- Tunisia: Le cluster des biotechnologies adossé au Pôle de Sidi Thabet, Le pôle de compétitivité Monastir- El, Fejja (la Manouba)
- European: European Cluster Collaboration Platform, European Network of Maritime Clusters

### **Other strategies, initiatives and plans**

- Union for the Mediterranean Roadmap for Action
- European Strategy for Plastics in Blue Economy
- Bioeconomy strategy
- CPMR Inter-Mediterranean Commission
- European Seas and Oceans 2020 and beyond
- Mediterranean Strategy for Sustainable Development 2016-2025
- Motorways of the Sea
- Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas
- Regional Plan for the Marine Litter Management in the Mediterranean
- Regional Transport Action Plan for the Mediterranean Region 2014-2020
- UN Environment/MAP Regional Action Plan for Sustainable Consumption and Production

### **Mediterranean Basin policies**

- Union for the Mediterranean Ministerial Conference on Blue Economy
- 2012 Limassol Declaration
- Common Fisheries Policy
- Blue Book - An integrated Maritime Policy for the European Union
- Declaration of the European Ministers responsible for the Integrated Maritime Policy on Blue Growth
- European Maritime Transport Policy
- Global Approach to Migration and Mobility
- Integrated Maritime Policy
- Valletta Declaration on Strengthening Euro-Mediterranean Cooperation through Research and Innovation

## Regional political divisions

Although there are various regional divisions in the Mediterranean, when assessing the challenges and opportunities of sustainable development and a sustainable Blue Economy in the Mediterranean, regional divisions are mostly constituted by NMCs and SEMCs. The use of 'Southern Neighbourhood' by the EU allows priorities to be differentiated, objectives and funding for 'eastern' and 'southern' regions, as part of the Neighbourhood Development and International Cooperation Instrument (NDICI).<sup>176</sup>

### United Nations

The Mediterranean Basin encompasses three different continents: the southern regions of Europe, southwest Asia in the East and the Maghreb region in the north of Africa. In total, 21 countries today have coastlines reaching the Mediterranean Sea: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, and Turkey.

According to the United Nations division in geographic regions,<sup>177</sup> countries in the Mediterranean Basin are part of these five regions:

- **Northern Africa:** Algeria, Egypt, Libya, Morocco, Sudan, Tunisia and Western Sahara.
- **Western Asia:** Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, State of Palestine, Syrian Arab Republic, Türkiye, United Arab Emirates and Yemen.
- **Eastern Europe:** Belarus, Bulgaria, Czechia, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Ukraine.
- **Southern Europe:** Albania, Andorra, Bosnia and Herzegovina, Croatia, Gibraltar, Greece, Holy See, Italy, Malta, Montenegro, North Macedonia, Portugal, San Marino, Serbia, Slovenia, Spain.
- **Western Europe:** Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands, Switzerland.

Moreover, the UN Economic and Social Council established a series of economic commissions to promote regional development. The five regional commissions are the following, and divide the Mediterranean countries into three different commissions, the ECA, the ECE and the ESCWA:

<sup>176</sup> IEMed. (2021). *The Externalisation of EU policies in the Renewed Partnership with the Southern Neighbourhood: The potential Impact of the New Mediterranean Agenda. Mediterranean Yearbook.*

<sup>177</sup> UNSTATS. (n.d). Countries or areas / geographical regions.

- **ECA:** Economic Commission for Africa.
- **ECE:** Economic Commission for Europe.
- **ESCWA:** Economic and Social Commission for Western Asia.
- **ECLAC:** Economic Commission for Latin America and the Caribbean.
- **ESCAP:** Economic and Social Commission for Asia and the Pacific.

### European Neighbourhood Policy and Enlargement Negotiations (DG NEAR)

According to the EU European Neighbourhood Policy and Enlargement Negotiations (DG NEAR), the regional division of countries across the Mediterranean and others external to the EU is the following:

- **Eastern Partnership:** The objective is to strengthen political and economic relations between the European Union, its member states and six Eastern European and South Caucasus 'partner countries': Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.
- **Southern Neighbourhood:** EU cooperation with the Southern Neighbourhood is included in the framework of the European Neighbourhood Policy (ENP), which is an initiative to reinforce prosperity, security and stability. The Southern Neighbourhood includes ten partner countries: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia.
- **Western Balkans and Türkiye:** This cooperation initiative includes the partner countries of Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia and Türkiye.

### Union for the Mediterranean

The Union for the Mediterranean sets in the "Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy"<sup>178</sup> the following division of the Mediterranean:

- **North-West Mediterranean:** France, Italy, Malta, Portugal, Spain
- **North-East Mediterranean:** Albania, Bosnia-Herzegovina, Croatia, Cyprus, Greece, Montenegro, Slovenia, Türkiye
- **South-West Mediterranean:** Algeria, Mauritania, Morocco, Tunisia
- **South-East Mediterranean:** Egypt, Israel, Jordan, Lebanon, Libya, Palestine

<sup>178</sup> UfM. (2023). *Roadmap to set the path towards the implementation of the 2021 UfM ministerial declaration on sustainable economy.*

## Review of the WestMED initiative

Some of the key elements of the strengths of the WestMED initiative are detailed below:

### 1. Dialogue and soft diplomacy

#### Actions taken

- Support Assistance Mechanism.
- Framework of soft diplomacy.
- Network of local stakeholders from participating countries.
- Stakeholder hackathons and conferences.
- Technical groups and maritime clusters.

#### Outcomes

- Relevant to support the needs of member countries.
- Facilitates the dialogue among members.
- It has an active involvement in political dialogue.
- It allows the exchange of ideas and contacts among participating countries.
- Enables the dialogue across countries and their maritime stakeholders.

### 2. Cooperation and partnerships

#### Actions taken

- Roadmap for liaising activities between Interreg Euro-MED (2021-27) and the WestMED initiative.
- Signing of an MoU with ASCAME in 2021 by the Assistance Mechanism.
- Establishment of specific means of collaboration with Interreg.
- 2021-2027 regulatory framework for Cohesion Funds.
- Future objectives: major coordination with Horizon Europe, the EU Sustainable Blue Economy Partnership and the EU Mission 'Restore our Oceans and Waters'.

#### Outcomes

- Establishment a vigorous collaboration framework and to support knowledge transfer between public and private actors.
- It details some specific provisions on the integration of sea-basin strategies.

### 3. Project support

#### Actions taken

- 70 projects with a total worth of EUR 92 million have been supported by the initiatives and its central hubs.
- WestMED project awards of 2021.

#### Outcomes

- It was an opportunity to spot new innovative and replicable projects (BLUESKILLS project won).



EMFAF call for flagship projects on Blue Economy.

This call awarded projects related to the recovery of coastal and maritime tourism.

#### 4. Knowledge sharing

##### Actions taken

Forum for knowledge sharing.

Support of the Assistance Mechanism in Algeria's Blue Economy strategy.

Inspiration for other countries.

##### Outcomes

Opportunity to share best practices and effective methods for policy shaping.

It was the first country to have a Blue Economy strategy with an identification of needs, activities, priorities and cross-border actions.

Case of Tunisia.

#### 5. Technical groups and alliances

##### Actions taken

Technical group on green shipping (2020)

Technical group on sustainable aquaculture Aquawest (2021)

Network of maritime clusters (2021)

##### Outcomes

- Assess emerging technologies and innovative models
- Create a network of maritime ports as energy communities
- Help boost the adaptation of commercial vessels.

- Promote knowledge sharing
- Facilitate policy development
- Encourage stakeholder cooperation
- Identify funding
- Maintain an information-sharing platform

- Encourage discussion and the exchange of knowledge and practices among clusters
- Boost the development of Southern Mediterranean maritime clusters through closer south-south cooperation
- North-south capacity building to help upgrade cluster management skills between the northern and southern Mediterranean
- Attract investment – particularly private investments for innovative SMEs

#### 6. Broader Mediterranean cooperation

##### Actions taken

Project collaboration between EU and non-EU countries that are not part of the WestMED initiative.

EMFAF flagship call: in 2022 it opened to all UfM countries.

BlueMed Initiative.

##### Outcomes

Larger participation and cooperation.

EU and non-EU countries, including WestMED countries.

2022 EC publication of a guidance document on synergies between Horizon Europe and the European Regional Development Fund programmes.

Future actions: WestMED will cooperate with the Blue-MissionMed (under the Mission Restore our Oceans and waters by 2030).

Despite the positive outcomes of the initiative, there are also various areas that could be improved. The analysis of weaknesses can allow the design of solutions and key aspects to take into account when developing similar initiatives.

### 1. Raising awareness and enhancing visibility

Problem	Proposed solution	Proposed solution
Outdated communication strategy.	Use the WestMED logo as a brand and improvement of the communication strategy, in collaboration with EU delegations in non-EU countries.	Major visibility, attraction of investment, partnerships, major support from governments and stakeholders in projects.

### 2. Refining performance metrics and indicators

Problem	Proposed solution	Proposed solution
Too broad targets and majorly quantitative targets.	Adopt alternative performance metrics for performance monitoring. Include qualitative and quantitative indicators, easy to monitor, integration of new priorities.	Improvement of the accuracy and measurement of success.

### 3. Reconfiguring and streamlining priorities

Problem	Proposed solution	Proposed solution
International and regional frameworks as well as priorities on sustainable Blue Economy policies in the Mediterranean change rapidly.	Aligning the priorities with new regional and international priorities. For instance, building on the second UfM Ministerial Declaration on sustainable Blue Economy	Orientation of the initiative's priorities towards new regional and international policies

## Mediterranean governance and regional policies

The governance and development of future cooperation mechanisms on marine and maritime areas in the Mediterranean rely highly on international organisations and institutions such as the UN, the World Bank, the OECD, the UN Environment, the UfM, the EU and the UN Environment/MAP.<sup>179</sup> Some of the main challenges of environmental

<sup>179</sup> Plan Bleu (2020). *Blue economy in the Mediterranean: case studies, lessons and perspectives*. Plan Bleu Paper n°19

governance in the Mediterranean are the fragmentation of responsibility, an uncoordinated planning and implementation of actions and a lack of financial resources at a public level, mostly locally.<sup>180</sup>

For a sustainable transition in the Mediterranean, a transformation of economic models and policies is needed. The effectiveness of policies that respond to climate change depends on the use of mechanisms of both mitigation and adaptation to climate change impacts, sustained on scientific evidence. Moreover, culturally adapted policies in the Mediterranean are key and they need to take into account its impacts on equity, social justice, inclusion and redistribution.<sup>181</sup> Policies to tackle environmental challenges are strongly interconnected between each other. In this way, they must be developed in an integrated manner, taking into account its repercussions in other sectors and possible synergies. For instance, the **Water-Energy and Food Nexus** allows one to gain a more integrated perspective for the development and implementation of policies. Moreover, the **Integrated Water Resources Management (IWRM)** consists of a process. Policies that aim to achieve a sustainable development in the Mediterranean must also include the development of economic instruments that promote behavioural changes.

International governance of the Blue Economy requires the signing, ratification and implementation of international relevant agreements at a global and regional level. Moreover, the legislation, regulations and current policies in place requires an effective implementation at the different levels. Decision-making processes in the Mediterranean must ensure transparency, inclusiveness and accountability. Moreover, both decision-making and legal frameworks have to be based on scientific data and information. In order to achieve that, mechanisms of science-policy interfaces can be effective. Environmental challenges should be tackled with political and economic regulatory frameworks and instruments and the Blue Economy should be further incorporated into territorial strategies and policies.

#### ***International frameworks for the Blue Economy***

- United Nations Convention on the Law of the Sea
- Paris Agreement under the UN Framework Convention on Climate Change (UNFCCC)
- UN Convention on Biological Diversity (CBD)
- 2030 Agenda for Sustainable Development
- Addis Ababa Action Agenda (Third International Conference on Financing for Sustainable Development, 2015)
- International Ocean Governance Agenda adopted in 2016

#### ***Barcelona Convention***

The Convention for the Protection of the Mediterranean Sea Against Pollution was

<sup>180</sup> UNEP/MAP (2016). *Mediterranean Strategy for Sustainable Development 2016-2025*. Valbonne. Plan Bleu, Regional Activity Centre.

<sup>181</sup> MedECC. (2020). *Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report*.

adopted in February 1976 and entered into force in 1978, under the umbrella of the United Nations Environmental Programme-Mediterranean Action Programme (UNEP-MAP), which is one of the key governance systems for environmental issues in the Mediterranean. It was the first multilateral cooperation initiative in the Mediterranean for the protection of the marine environment. It was amended in 1995 and renamed the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean. The Convention<sup>182</sup> and its seven protocols are the main legally binding Multilateral Environmental Agreement in the Mediterranean region. The 22 Contracting Parties to the Barcelona Convention are: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syrian Arab Republic, Tunisia, Türkiye, and the European Union.

Some relevant protocols in the scope of the Blue Economy in the Mediterranean are the following:

- **Dumping Protocol:** This protocol entered into force in 1978 with the objective of preventing and eliminating pollution caused by dumping of wastes or other substances. It prohibits the dumping of certain types of matter and substances (i.e., mercury, several toxic compounds, crude oil, cadmium, etc.), and contains the obligation to develop specific guidelines to evaluate wastes and other matter.
- **Prevention and emergency protocol:** It entered into force in 1978 and aims to provide a framework of cooperation to respond to oil and hazardous noxious substances (HNS) pollution incidents. It requires contingency plans in ports, platforms and ships.
- **Land-Based Sources Protocol:** The protocol entered into force in 1983 and its objective is to prevent and eliminate pollution coming from land sources to the Mediterranean Sea. It stipulates the adoption of standards and measures to reduce and eliminate targeted substances.
- **Specially Protected Areas and Biological Diversity Protocol:** The protocol, which entered into force in 1986 aims to promote the conservation of biological diversity and endangered species in the Mediterranean through the establishment of Specially Protected Areas (SPAs) and Specially Protected Areas of Mediterranean Importance (SPAMIs).
- **Offshore Protocol:** Entered into force in 2011 and addresses offshore oil and gas activities in the Mediterranean. It aims to reduce pollution in all of its phases and to respond effectively to pollution incidents from those activities.
- **Hazardous Wastes Protocol:** The protocol entered into force in 2008 and its objective is to establish preventive measures to minimise the effects of hazardous wastes to protect human health and the marine environment.
- **Integrated Coastal Zone Management Protocol:** It was adopted in 2008 and entered into force in 2011 and it consists of a legal framework for an integrated and coordinated coastal zone management. For instance, some measures included in the protocol are the protection of coastal ecosystems, a sustainable

<sup>182</sup> United Nations Environment Programme. (2019). *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and Its Protocols*.

use of coastal zones and the adaptation of marine economies to fragile ecosystems.

### **Ecosystem Approach (EcAp)**

The Ecosystem Approach is an important principle for the development of policies and its implementation, in the framework of the Barcelona convention. The objective of implementing the Ecosystem Approach is to achieve a Good Environmental Status (GES) in countries.

### **Mediterranean Strategy for Sustainable Development (MSSD) 2016-2025**

Integrated policy framework, which brings the Sustainable Development Goals Agenda of 2030 to pathways in regional, sub-regional, national and local levels in the Mediterranean. It aims as well to stimulate regional cooperation.

### **Regional Action Plan on Consumption and Production in the Mediterranean (2017)**

Its objective is to complement the Strategy for Sustainable Development with a focus on fisheries and tourism.

### **Regional Action Plan for Marine Litter prevention:**

This action plan proposes a set of measures towards circular economy as well as various actions to tackle plastic pollution in marine environments. Some of the actions mentioned include: standards on product labelling, increasing recyclability of products, and clear targets to diminish the use of non recyclable, reusable and compostable items made of plastic, among others.

## **Sub-regional cooperation mechanisms**

### ***European Union***

The EU is a strong market economy which undoubtedly has a big external environmental impact beyond its territory and has contributed to the global pollution and effects of climate change. Nonetheless, the EU has set various targets and it is committed to achieve the decarbonisation of its economy (55% of emissions reduction by 2030) and to achieve climate neutrality by the year 2050. Its main climate policy framework is the EU Green Deal, accompanied with the implementation strategy fit for 55. The EU frames its green transition as an economic opportunity for growth.

As business value chains go beyond frontiers, the EU recognises the need to promote sustainable business practices, environmental action and the EU's expertise beyond EU borders. It has therefore committed<sup>183</sup> to support non-EU countries in their transition to more diversified, fair and sustainable blue economies, to participate in multilateral initiatives and to provide funding opportunities.

### ***EU Mediterranean cooperation mechanisms***

A Renewed Partnership with the Southern Neighbourhood - [A New Agenda for the Mediterranean](#) was approved in 2021 to address common challenges and enhance

<sup>183</sup> European Commission. (2021). *Communication on a new approach for a sustainable Blue Economy in the EU: Transforming the EU's Blue Economy for a Sustainable Future.*

EU-Mediterranean relations. The green transition has a relevant role and it identifies five main areas for the green transition: climate action and green growth; energy transition and security; resource efficiency; protection of diversity and pollution reduction; and sustainable food systems. The budget to achieve those objectives comes from the Neighbourhood, Development, and International Cooperation Instrument (NDICI) - Global Europe. Nevertheless, according to experts, the agenda does not sufficiently address some of the social realities in the Mediterranean, such as income inequality, regional economic cooperation, trade discrimination and demographic challenges.<sup>184</sup>

European Neighbourhood Policy (ENP): The new framework of ENP includes and prioritises climate action in both politics and finance, and presents the opportunity to cooperate in strategic climate action priorities. In climate diplomacy, EU delegations will have a very important role for advocacy. In 2015, a reviewed ENP was presented.<sup>185</sup>

Sustainable Blue Economy Partnership (SBEP): European partnership under the EC's Research & Innovation Framework Programme Horizon Europe to align national programmes as well as promote investments in research and innovation.

#### **EU policy frameworks**

- Strategic EU Frameworks
- Europe 2020: A strategy for smart, sustainable and inclusive growth
- Integrated Maritime Policy
- Ocean Governance
- 7th° Environmental Action Programme
- Circular Economy Package
- European Green Deal
- Farm to Fork strategy

**Communication on a new approach for a sustainable Blue Economy in the EU: Transforming the EU's Blue Economy for a Sustainable Future (2021):** This communication sets an agenda for the transition of the sector from "Blue Growth" to a sustainable Blue Economy.

#### **EU International Ocean Governance:**

- Setting the course for a sustainable blue planet, Joint Communication on the EU's International Ocean Governance agenda (2022)<sup>186</sup>
- Joint Communication on International Ocean Governance from 2016.

#### **Carbon Border Adjustment Mechanism (CBAM):**

This measure is part of the fit for 55 EU strategies and it consists on making carbon-intensive products pay an extra taxation. Some of the affected industries by this mechanism are electricity, fertilisers, iron, steel, aluminium and cement.

<sup>184</sup> European Parliament. (2022). *Renewed partnership with the Southern Neighbourhood*.

<sup>185</sup> European Commission - DG NEAR. (n.d.). *Review of the European Neighbourhood Policy (ENP)*.

<sup>186</sup> European Commission. (2022). *Setting the course for a sustainable blue planet - Joint Communication on the EU's International Ocean Governance agenda*.

### **EU Green Taxonomy Regulation:**

The EU Green Taxonomy Regulation, as a tool for the implementation of the Green Deal, consists of a classification using labels of sustainable economic activities and investments. The aim is to increase investments in decarbonised economic activities.

### **Mission: Restore our Ocean and Waters**

This new strategy under the programme Horizon Europe aims to protect oceans and seas through research and innovation. EU missions will focus on concrete challenges and offer solutions through the combination of research and innovation and new governance and citizen engagement forms. The lighthouse mission supports cooperation through area-based "Lighthouses" in major sea or river basins, which will act as hubs for the development of new solutions. One of its support structures that has been established is the Mediterranean Basin Lighthouse.

### **Circular economy in Blue Economy framework and policies**

According to a recent study,<sup>187</sup> moving towards a Circular Economy would benefit the EU, not only from an environmental perspective but also with a GDP increase of almost 0.5% in 2030 and a boost of employment. It is estimated that employment in the waste management sector could be 660,000 jobs.

**New Circular Economy Action Plan (2020):** Adopted by the EC, this plan aims to set a path towards the transition to a circular economy and to support the implementation of the European Green Deal. It builds on the 2015 Circular Economy Package and Action Plan.

**EU Strategy for Plastics in the Circular Economy:** It has the objective to reduce single-use plastic and the impact of plastic in the ecosystems, as well as innovate in the production and recycling of plastics.

**Single-Use Plastics Directive (SUP):** It focuses on the 10 single-use plastics which are more utilised and found in European beaches and aims to innovate with new solutions and alternatives. It includes the Extended Producer Responsibility, aimed to start in December 2024.

**Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030:** Guide for the development of the aquaculture sector in a competitive, resilient and sustainable way. It promotes organic aquaculture.

### **EC package of legislative and non-legislative measures for the life cycle of products**

#### **Sectoral EU policies**

- Common Fisheries Policy
- Strategic Guidelines for the sustainable development of EU aquaculture
- A European Strategy for more Growth and Jobs in Coastal and Maritime Tourism

<sup>187</sup> Cambridge Econometrics, Trinomics, and ICF. (2018). *Impacts of circular economy policies on the labour market.*

- An EU Strategy on adaptation to climate change
- Energy-related policies, Transport-related policies
- Innovating for Sustainable Growth: A Bioeconomy for Europe.

#### **Directives and regulatory acts**

- Marine Strategy Framework Directive
- Water Framework Directive
- Maritime Spatial Planning Directive
- Habitats & Birds Directives, Floods Directive
- Renewable Energy Directive
- Safety Oil & Gas Directive

#### ***Governance in specific fields of action***

- **MedWet:** Mediterranean Wetlands aims to preserve the conservation of Mediterranean Wetlands and their sustainable use. It brings together the Mediterranean countries which are parties to the Convention on Wetlands.
- **MedPAN:** Its objective is to develop a network of marine protected areas in order to avoid biodiversity damage and loss and ensure a correct management of those areas.
- **PIM Initiative:** Non-governmental organization with an international scope that aims to promote the preservation and maintenance of Mediterranean insular areas.
- **The IUCN Centre for Mediterranean Cooperation:** Environmental organisation that works on biodiversity conservation and in the promotion of sustainable livelihoods, with an observatory status at the United National General Assembly.

## **Sustainable Blue Economy Finance Principles**

UNEP's Sustainable Blue Economy Finance Principles are a global guiding framework to finance a sustainable Blue Economy. They were launched in 2018 and set out ocean-specific standards to allow green investments in ocean-based sectors. The principles were developed by the EC, WWF, the World Resources Institute and the EIB, and are hosted by UNEP as part of the Sustainable Blue Economy Finance Initiative.

The **14 principles for a sustainable Blue Economy** are the following:

- 1. Protective:** investments should take all possible measures to restore, protect or maintain the diversity, productivity, resilience, core functions, value and the overall health of marine ecosystems, as well as the livelihoods and communities dependent upon them.
- 2. Compliant:** investments should be compliant with international, regional, national legal and other relevant frameworks which underpin sustainable development and ocean health.
- 3. Risk-aware:** investment decisions should be based on long-term assessments that account for economic, social and environmental values, quantified risks and systemic impacts, and adapt these decisions to new knowledge available.
- 4. Systematic:** investment decisions should take into account systemic and cumulative impacts across value chains.



- 5. Inclusive:** investments should include, support and enhance local livelihoods, and engage effectively with relevant stakeholders, identifying, responding to and mitigating any issues arising from affected parties.
- 6. Cooperative:** investors should cooperate with other financial institutions and relevant stakeholders to promote and implement these principles through sharing of knowledge about the ocean, best practices, lessons learned, etc.
- 7. Transparent:** investment decisions should be transparent and information (positive and negative) should be available.
- 8. Purposeful:** investments should contribute directly to the achievement of SDG 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”, and other SDG related.
- 9. Impactful:** investments should go beyond the “Do no harm” principle to provide social, environmental and economic benefits for both current and future generations.
- 10. Precautionary:** investments should assess environmental and social risks and impacts, even when scientific data is not available.
- 11. Diversified:** investments should reach a wider range of sustainable development projects, for example in traditional and non-traditional sectors, and in small and large-scale projects.
- 12. Solution-driven:** investments should be directed to innovative commercial solutions to maritime issues that have a positive impact on marine ecosystems and ocean-dependent livelihoods.
- 13. Partnering:** investors should partner with public, private and non-government sector entities to accelerate progress towards a sustainable Blue Economy, including in the establishment and implementation of coastal and maritime spatial planning approaches.
- 14. Science-led:** investors should develop knowledge and data on the potential risks and impacts associated with their investments, and share scientific information and data on the marine environment that could lead to sustainable finance opportunities in the Blue Economy.

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Policy Report

