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# Towards a Sustainable Blue Economy in the Mediterranean region

2021 Edition



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**Disclaimer**

This publication collects qualitative/quantitative information on the current status and potential of the blue sectors in the UfM region with a particular focus on the Mediterranean countries.

The information and views set out in this publication do not necessarily reflect the official opinion of the Union for the Mediterranean and donors involved, which are not responsible for any use that may be made of the information contained therein.

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# COASTAL AND MARITIME TOURISM

## In the Mediterranean Sea



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All maritime and coastal tourism - including cruise industry

## SECTORAL CHARACTERISTICS

- ▶ Representing 30% of global tourism flows and hosting the world's leading tourist destinations
- ▶ Volatile sector exposed to climate change effects (e.g. coast erosion) and global shocks (financial crises, pandemics, etc.)
- ▶ Clear need for structural changes towards more ecologically sustainable and socially resilient models which are grounded on local strengths and assure domestic returns

## CHALLENGES

- ▶ Persistent detrimental impacts of current unsustainable business models on natural ecosystems
- ▶ Natural assets highly exposed to the impacts of climate change, eutrophication and related challenges

## OPPORTUNITIES

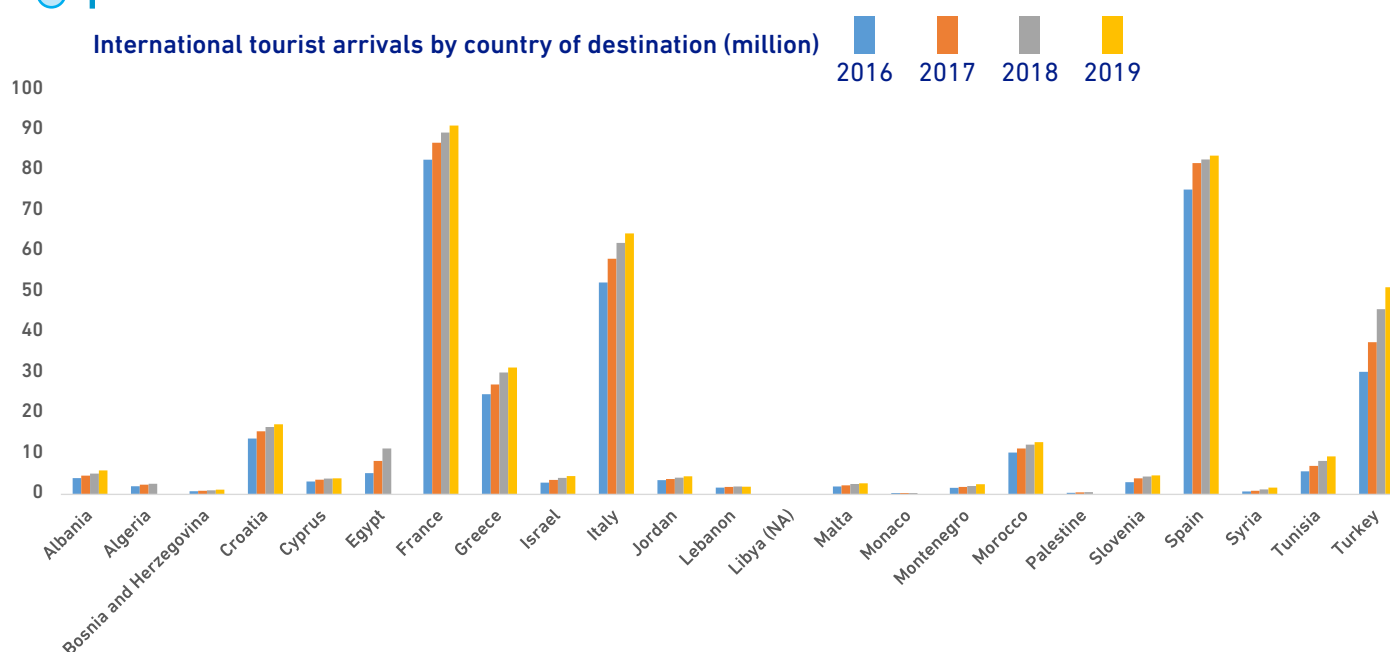
- ▶ Capturing the value of biodiversity as a basis for growth
- ▶ Potentials for a stronger regional brand across green, sustainable and value-added destinations

Past

2016-2019

- ▶ Strong recovery of the sector from the financial crisis, although with different vulnerability levels
- ▶ 2019 was the greatest year for tourism transits in the region (22.1 M passengers)
- ▶ Distribution of arrivals and revenues varied largely across the region - total contribution estimated at 901 billion dollars in 2015, with only 58 billion reaching North African countries

International tourist arrivals by country of destination (million)

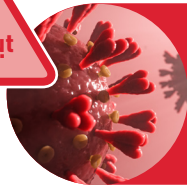


Source: own

Quantitative data for 2016-2019 was extracted from UNWTO Data reports of [2017](#), [2018](#), [2019](#) and [2020](#) (\*2019 data is provisional with data up to May 2020). Syria data and 2019 France data extracted from [UNWTO Tourism Dashboard data regarding seasonality](#). France and Spain data is at national level, not just for the Mediterranean region

## Present

- ▶ A strategic understanding has emerged amongst businesses and policymakers to refocus the touristic appeal to local visitors – by assuring safety, promoting sustainable and socially inclusive services and products, and raising the 'one destination' profile of the Mediterranean region
- ▶ Tourism flows and economic benefits differ greatly across the Mediterranean basin: the North-West of the Mediterranean accounts for 64% of international tourism arrivals, while the South-East represents 17%, the North-East 14% and South-West 5%
- ▶ The sector as a whole has been growing and recent estimates expected it to reach 626 million international tourist arrivals by 2025
- ▶ International tourist arrivals were expected to increase to globally 1.8 billion by 2030; a trend that may well be reconsidered at least in the mid-term, due to the COVID-19 pandemic



## COVID-19 IMPACT

- ▶ 60-80% decline in international arrivals
- ▶ 120 million direct tourism jobs are at risk globally
- ▶ Need to rethink how the sector operates to move towards a sustainable recovery

## Future

### 2021-2030

- ▶ Overall growth potentials remain high when applying more sustainable and value-added models. These include a push to favour greater economic returns for local communities and creating high skilled jobs. Although, this results in a challenge to ensure the availability of qualified workers
- ▶ Recovery paths across the region include further development of the Mediterranean as a single tourism brand – e.g. by fostering innovation for fully sustainable, safe and accessible tourist destinations, greater ability to develop green tourism infrastructures, reducing seasonality effects due to mass tourism, and an uptake of digitalisation to ensure the diversification of touristic markets, products and services

## EMPLOYMENT



### Trends

- ▶ Important source for jobs. 2.5 M jobs South Med in 2017 and 4.9 M in 2019

### Skills

- ▶ Need to foster sustainable partnerships among stakeholders to translate the sector's growth agenda into a comprehensive skills strategy and to take action to address sectorial skills needs

### Youth & Women

- ▶ 54% of people employed in core tourism activities are women
- ▶ Youth unemployment opportunities exist (i.e. new technologies & innovation)

## COVID-19 IMPACT

- ▶ Coastal communities mostly consist of SMEs and micro-enterprises that are vulnerable to economic, financial and political changes

- ▶ Knowledge and skills exchanges interrupted or moved to online platforms

- ▶ Women employment in accommodation and food services at high risk
- ▶ Youth employment at risk (uncertainty, training on-hold, etc.)

# MARINE RENEWABLE ENERGIES

## In the Mediterranean Sea



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### SECTORAL CHARACTERISTICS

- ▶ Fast-growing blue sector, with considerable potential in terms of technological development and employment opportunities
- ▶ Floating offshore wind technology is considered the most suitable for the Mediterranean Sea given that it can be deployed in deeper waters. This technology allows for exploitation of offshore areas
- ▶ Need to strengthen regional cooperation in energy, grid and marine spatial planning for cost optimisation of the deployment of Marine Renewable Energies (MRE) in the Mediterranean

### CHALLENGES

- ▶ Conflicts induced by co-existence with different uses of the maritime space, namely tourism, fisheries and shipping
- ▶ Knowledge on long-term environmental impacts still limited. Major concerns include increased noise levels, collision risk, habitat alteration or contaminants release

### OPPORTUNITIES

- ▶ Further developing sustainable energy self-sufficiency of coastal areas and islands
- ▶ Enhancing the transition towards carbon-neutral ports
- ▶ MRE platforms to serve as mobile and/or stationary platforms for other uses (i.e. marine observation)

#### Past

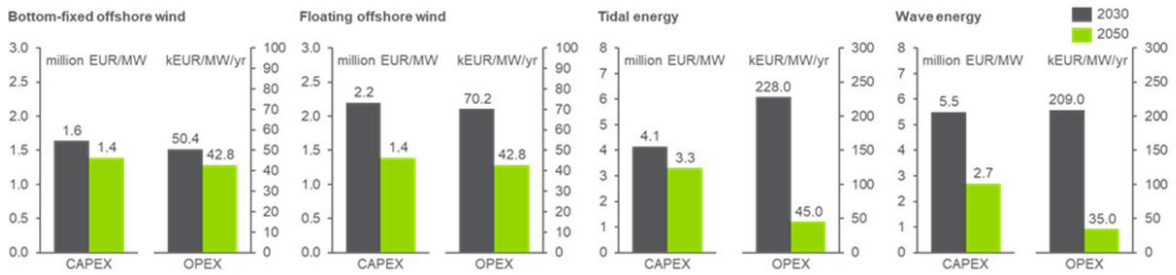
#### 2016-2019

- ▶ No commercial offshore wind parks exist yet in the Mediterranean
- ▶ No infrastructure developed beyond the pilot phases on wave, tidal, thermal and osmotic energy
- ▶ Developing and implementing marine energy technologies has so far not been a priority in the Mediterranean, as it is considered less cost-effective when compared to other renewables (e.g. solar or land-based wind energy)

#### Present

- ▶ Offshore wind is for the time being mostly deployed in the north of the Mediterranean - notably in France, Greece, Italy and Portugal
- ▶ 23 offshore wind projects are currently in the pipeline, most of these are currently in the planning and permitting development stages
- ▶ Other forms of ocean energy are still experimental, despite proven good potential for wave energy and localised potential for tidal energy
- ▶ Only two countries in the Northern Mediterranean area have adopted specific policies for the exploitation of wave and tidal power for energy purposes
- ▶ Among offshore technologies, Levelized Costs Of Energy (LCOE) values for bottom-fixed offshore wind are lower than for floating offshore; however, the difference is expected to decrease by 2050. For wave and tidal technologies, LCOE values are significantly higher, but they are also on a decreasing trend

## Projected decrease in Capital and Operating Expenses (CAPEX/ OPEX) for Marine renewables (offshore wind, energy and wave)



Source: [Study on the offshore grid potential in the Mediterranean region](#) (Nov. 2020)

## Future

### 2021-2030

- ▶ Marine renewables are given a prominent role within the European Green Deal and the COVID recovery package
- ▶ A total estimated 70 GW of offshore wind energy production to be located in Southern European waters by 2040
- ▶ Marine renewable energy could help to reduce annual greenhouse gas emissions by 10% so that the global temperature does not exceed the critical threshold of 1.5°C in 2050
- ▶ Some technology are becoming more affordable (e.g. fixed offshore wind)

## EMPLOYMENT



### Trends

- ▶ Exponential increase in job creation across the different markets and technologies

### Skills

- ▶ Technical and professional skills needed in sustainable energy production sectors, eco-jobs, design & planning; energy policy analysis; energy economics and consulting; R&D, etc.

### Youth & Women

- ▶ Young professionals more keen to move to renewables sector's employment opportunities
- ▶ Various opportunities for digitalized and sustainable aware youth
- ▶ Yet, women continue to face barriers to recruitment and job retention in a still male-dominated energy industry

## COVID - 19 IMPACT

- ▶ Sector appears "resilient" to COVID-19 impacts despite supply disruptions and delays
- ▶ Boost of the sector under the perspective of smart and sustainable growth
- ▶ Important job creation potentials regarding new and existing markets

- ▶ On-site trainings delayed or gone virtual
- ▶ Digital inequality and access to internet

- ▶ Further enhance the unequal access of women to the sector's employment opportunities
- ▶ Internet connectivity and knowledge access gap

# FISHERIES AND AQUACULTURE

## In the Mediterranean Sea



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### SECTORAL CHARACTERISTICS

- ▶ Established fisheries and growing aquaculture sectors, the latter with considerable development potential for diversification in products (e.g. algae or blue-biotechs)
- ▶ Increased diversification of fisheries and aquaculture as a means of improving the sustainability of the sectors
- ▶ Strong demand for R&I to help address climate change effects, sustainability issues and value creation
- ▶ Growing political support for enabling a fully sustainable transition (local value with low impact) and implementing circular economy approaches (e.g. waste recycling, new process)
- ▶ Unsustainable production system (e.g. risks of diseases and ecosystem impacts if not well designed/ managed) and higher standards required to access high-value markets
- ▶ High initial investment-cost and great levels of risks for business, hampering the uptake of more sustainable and innovative business models and technologies

### CHALLENGES

- ▶ Need for improving innovation capabilities of local small scale producers through i.e. infrastructure-investments, R&I investments and awareness raising
- ▶ Regional and global competition for more “traditional” aquaculture production (fish for consumption) in an already saturated market

### OPPORTUNITIES

- ▶ Growing regional commitments towards a fully sustainable sector, coupled with a growing range of financing streams to support the transitions in fisheries and aquaculture
- ▶ Further diversification towards high-value productions to attract private investors (accelerator, investment banks, etc.), particularly for innovative aquaculture practices
- ▶ Strong prospects for quality local jobs across sustainable and diversified value chains

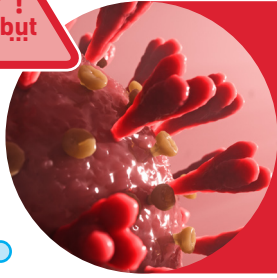
Past

2016-2019

- ▶ Fisheries was traditionally a relevant economic sector (about EUR 3.4 billions in 2018)
- ▶ Compared to 2016, fisheries revenue in 2018 for the Mediterranean has increased about 10%, with the overall revenue from 2013 to 2018 ranging between EUR 3.2 and 3.7 billion
- ▶ Aquaculture production grew through time to supply fish demand as living stocks were declining

Present

- ▶ Although still a relevant economic sector for Mediterranean countries, the fisheries sector is facing an important and growing seafood supply deficit, something fuelled by increasingly stringent regional commitments
- ▶ As part of their national strategies for blue economy, several Mediterranean countries have already defined national strategies or action plans to develop marine aquaculture
- ▶ Offshore aquaculture production offers promising developments, despite the challenges of disease, local environmental impacts as well as limits to supply growth faced by conventional coastal producers
- ▶ Twenty-two species represent over 70% of the total landing value in the Mediterranean (with possible room for diversification)



## COVID-19 IMPACT

- ▶ Both sectors have been strongly affected
- ▶ Fishing has been hard hit, with reductions of up to 80% in the number of operating vessels
- ▶ Aquaculture farms had very diverse impacts, largely depending on the type of species reared
- ▶ Drastic decline in demand of fishery products by hotels, restaurants and tourism industry at large

## Future

## 2021-2030

- ▶ The sector is expected to continue developing and diversifying as demand for fish products for human consumption increases and wild stocks continue to decline. By 2025, it is projected that aquaculture will supply more than half (52%) of all fish used for human food
- ▶ The diversification of the sector is increasingly considered to boost competitiveness and sustainability of the aquaculture activities, with mariculture including high added value creation (algae, biotechnologies), where research and innovation can be mobilised
- ▶ Important steps will be taken towards the spatial management of fisheries resources – including through Fisheries Restricted Areas (FRA), monitoring of vulnerable marine ecosystems (VMEs) and hotspots
- ▶ Greater cooperation to strengthen overall sustainability of practices and policies is essential across the Mediterranean (e.g. ongoing dialogue under the UNEP-MAP and the WestMED Initiative)

## EMPLOYMENT



### Trends

- ▶ Capture fisheries in the Mediterranean support approx 200,000 direct and 500,000 indirect jobs ( with a relative stagnation since 2016)
- ▶ Across the region, the workforce is aging, with close to half of all crew members over the age of 40, while only 17% are under the age of 25.
- ▶ Further added value and jobs creation with mariculture (blue biotechnologies, algae)

### Skills

- ▶ Technical and professional skills needed in sustainable aquaculture/mariculture, design & planning; circular economy implementation
- ▶ Greater skills needed for policymakers to establish effective coastal zones dedicated to aquaculture in the Mediterranean
- ▶ Overall know-how of small-scale businesses should be improved (including their ability to engage with sustainable investors interested in the sector)

### Youth & Women

- ▶ Attractiveness for youth and women with a wide variety of full-time, part-time and seasonal employment along the value chain where synergies can be found, for instance with fisheries
- ▶ Women also play an important role in aquaculture, with their key contribution being in both small-scale and industrial fisheries at the processing and marketing stage

## COVID-19 IMPACT

- ▶ Expected damaging effect due to indirect impacts on consumer behaviours, access to market and the food service industry (HORECA)

- ▶ Possibly greater attention to safety, health and resilience as essential (managerial) skills

- ▶ Further enhance the access of women to the sector's employment opportunities



# MARITIME SAFETY AND SECURITY

In the Mediterranean Sea



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## SECTORAL CHARACTERISTICS

- ▶ Maritime safety and security have become a key transnational issue in the Mediterranean area, encompassing safety, security and environmental aspects
- ▶ Mediterranean Coast Guard Functions Forum (MedCGFF) enhances cooperation around maritime issues of mutual importance and of common interest

## CHALLENGES

- ▶ Detect threats as early as possible (need to improve early-detection systems)
- ▶ Develop a commonly shared data management strategy in the Mediterranean

## OPPORTUNITIES

- ▶ Further develop training activities and to facilitate exchange of information, expertise, technical assistance, training and best practices to address illicit activities, etc
- ▶ New markets and applications for technologies (digitalisation and optimisation)
- ▶ New approaches to tackle complex issues (e.g. climate change)
- ▶ Support pillar for MSP/ICZM and blue growth

### Past

#### 2016-2019

- ▶ Need for a stronger and fairer cooperation policy
- ▶ Facilities lagging behind in implementing security and safety measures
- ▶ Initial efforts have taken place to improve, encourage and ensure information exchange between public and private sectors

### Present

- ▶ New challenges resulting from increasing pressures and diversified activities at sea; pressures include migration, environmental risks and protection, environment and climate change
- ▶ Need to involve public and private bodies, universities, local authorities and citizens through digital transformation
- ▶ Better data and information sharing between different institutional levels
- ▶ Need to improve the efficiency and response of existing systems

### Future

#### 2021-2030

- ▶ Opportunities for space technologies to find new markets and applications
- ▶ New innovative technologies (unmanned and autonomous systems, AI, 5G, cloud and edge computing, digitalization, monitoring, optimization, interoperability, etc.)
- ▶ Development of social and environmental responsibility of private sectors
- ▶ Prominent role within the European Green Deal, Blue Economy and the Next Generation EU

# EMPLOYMENT



## Trends

- ▶ New markets and applications of technologies (unmanned and autonomous systems, AI, big data, etc.)

## Skills

- ▶ Multidisciplinary approach required (e.g. ICT, management, mathematics, sociology, law)
- ▶ Soft skills required for validation processes, integration of various data sources, new applications of the data, cross-sectoral integration knowledge...

## Youth & Women

- ▶ Various opportunities to newcomers (especially young)
- ▶ Still a male-driven sector with further efforts required to reduce gender gap

## COVID-19 IMPACT

### Highlighted needs:

- ▶ Improve, encourage and ensure information exchange
- ▶ Build trust and ensure confidentiality of data
- ▶ Improve cyber-security

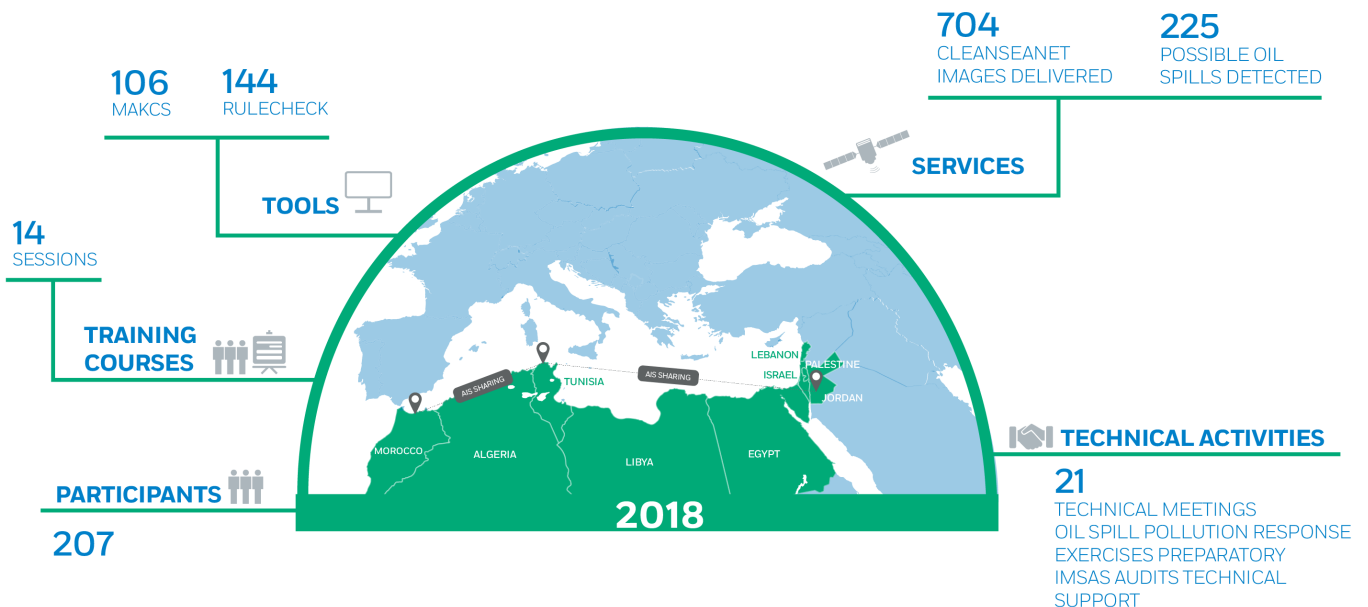
### Highlighted needs:

- ▶ Improve the skills on digitalization, green jobs, emissions control and data interoperability, optimization and sharing

- ▶ Improve high-level education and training in "safety and security issues"
- ▶ Exchanges of knowledge stopped due to travel restrictions

## MEDITERRANEAN SEA PROJECT – SAFEMED IV

Supporting maritime safety, security and marine environmental protection



Source: [EMSA website infographics \(2019\)](#)

# MARITIME TRANSPORT AND PORTS

In the Mediterranean Sea



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## SECTORAL CHARACTERISTICS

- ▶ Covering about 80% of global trade, commercial shipping is an essential driver for global growth, with intra-Mediterranean maritime trade flows accounting for 25% of global traffic over just 3.5% of world water
- ▶ The sector is an essential element of the economy and job creation across the Mediterranean, but is also exposed to market fluctuation and international crisis; this makes it a relatively volatile source of growth and jobs in a world increasingly exposed to shocks
- ▶ Greening maritime transport is one of the great challenges for the region; this concerns greenhouse gas emissions, air and water pollution, accidents and marine spills, noise, and impacts on biodiversity

## CHALLENGES

- ▶ Lack of market-readiness for zero-emission technologies
- ▶ Long development and life cycles of vessels
- ▶ Requirement for significant investments in refuelling equipment and infrastructure
- ▶ International competition in the sector

## OPPORTUNITIES

- ▶ Green shipping and alternative fuels
- ▶ Digitalisation, automation and smart ports
- ▶ Sustainability of the entire value chain
- ▶ Integrated innovative solutions

### Past

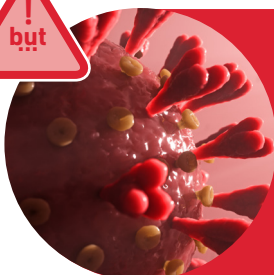
#### 2016-2019

- ▶ International maritime transport has been growing in the past decade at an average rate of about 3% to 3.5% in recent years (2005 till 2018), with a further increase to approximately 4% in 2019
- ▶ 10% of world cruises have been hosted in the region, with up to almost 2.5 million travellers in 2019 and short-sea shipping representing a growing proportion of this traffic
- ▶ Continuous expansion of maritime ports both in the north and south of the region, with differences in structures and managerial specificities across ports and countries
- ▶ Northern African ports have also increasingly established themselves as essential nodes in an important shipping network

### Present

- ▶ Contraction caused by the pandemic has been deeper than during the 2008 financial crisis (-24%)
- ▶ Opportunities for the sector are offered by the EU Green Deal and the EU Sustainable Smart Mobility Strategy
- ▶ Vulnerability of the regional market and the just-in-time model have emerged, with a need to strengthen its resilience and explore reliable supply-chains

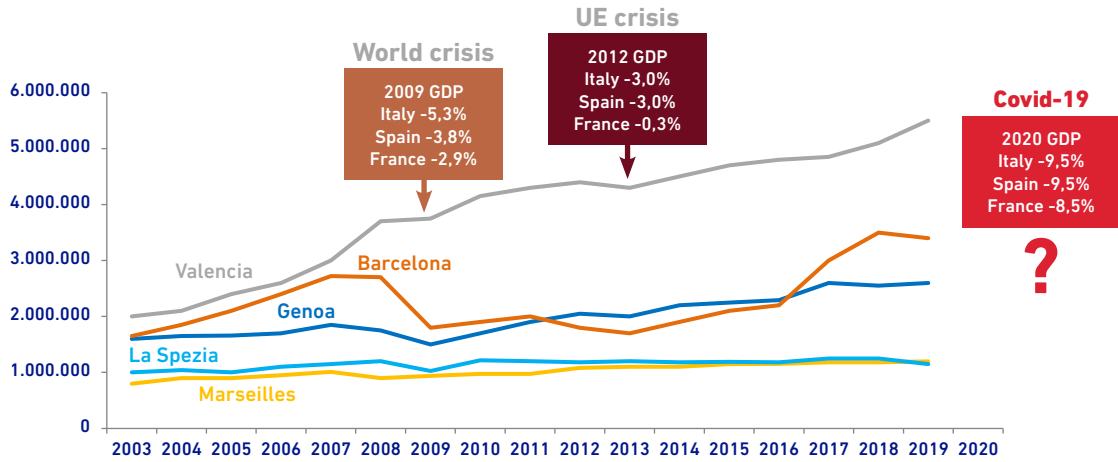
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## COVID-19 IMPACT

- ▶ Transport amongst the sectors hit hardest by COVID-19, with the most significant impact on cruise and passenger ships
- ▶ Global trade contracted by -27%; Ship calls in EU declined by 12.5% in the first 48 weeks.
- ▶ North African ports suffered from delays and frequency changes

## Containers Port Traffic Evolution (TEU)



Source: MedPorts Webinar 2020. Presentation: [The planetary pandemic: First Maritime Effects and Mediterranean dimension](#)

## Future

### 2021-2030

- ▶ Uncertainty on recovery scenarios (projected to recover and expand by 4.8% in 2021)
- ▶ Opportunities for green shipping and alternative fuels, digitalization and automation, sustainability of the value chain, and innovative technologies and solutions
- ▶ Ongoing discussions on a possible emission control area for the Mediterranean

## EMPLOYMENT



### Trends

- ▶ Important source for green-jobs (especially for the young) with growth potentials between 5-10%
- ▶ Sector facing labour shortages (due to lack of highly qualified personnel and work conditions)

### Skills

- ▶ Skills shortages in foreign trade, environment and sustainability, digitalisation and port logistic operations
- ▶ Managerial ability to redefine just-in-time models and re-define the current supply chains and increase resilience of regional trade

### Youth & Women

- ▶ Both should benefit from the transition to a greener, smarter and more resilient mobility system
- ▶ Need to enhance opportunities for youth & women offering good social conditions and attractive jobs
- ▶ High employability of youth in Logistic Port Communities
- ▶ Need to increase the women representativeness in the sector

## COVID-19 IMPACT

- ▶ Employment offers delayed or stopped
- ▶ Job cuts in port logistics

- ▶ Need to move all trainings to virtual
- ▶ Differences in connectivity readiness of ports

- ▶ Improve high-level education and training in "safety and security issues"
- ▶ Exchanges of knowledge stopped due to travel restrictions

# MARINE RESEARCH & INNOVATION

In the Mediterranean Sea



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## CROSS-CUTTING THEME

- ▶ Research & Innovation (R&I) is an essential backbone driving the sustainable blue economy in the Mediterranean
- ▶ To be fully effective and impactful, R&I activities should reflect on the specific needs and opportunities for the region
- ▶ Greater cooperation and a stronger sense of a regional community is essential

## CHALLENGES

- ▶ Disparities in R&I capacity persist across the region
- ▶ Increasing the collection and dissemination of robust scientific evidence across the seabasin
- ▶ Further aligning R&I efforts to those business needs
- ▶ Access to financing solutions in the region

## OPPORTUNITIES

- ▶ Existing platforms for regional cooperation
- ▶ Many enabling actions currently being implemented
- ▶ Increasing streams of sustainable financing

## BLUEMED

To support a sustainable blue economy across the seabasin has been shaped under the **BLUEMED** Initiative over the past years. The agenda outlines a set of key challenges, knowledge gaps and enabling activities, as well as measures for capacity creation and skills' enhancement. An Implementation Plan has been drafted in June 2020, resulting from the priorities provided by each Mediterranean country. This addresses a number of structural challenges for a sustainable blue economy across the seabasin

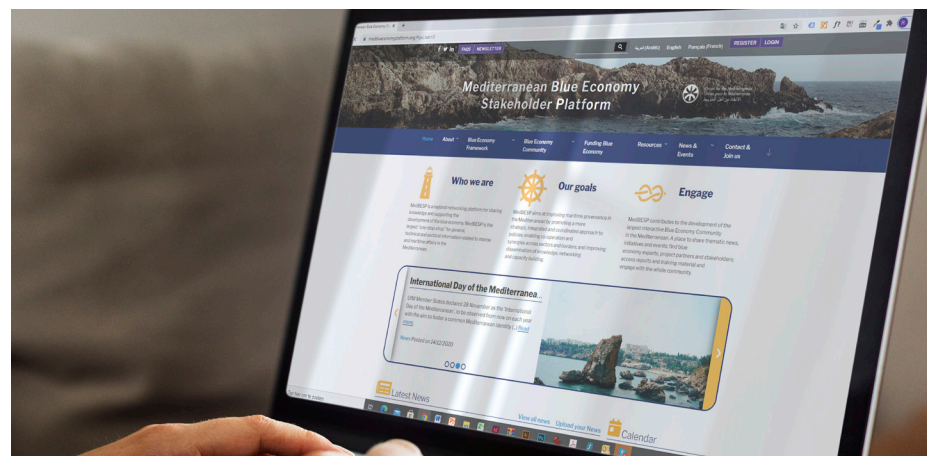
### BLUEMED Mediterranean top priorities for Research and Innovation



Source: [BlueMED website](#)

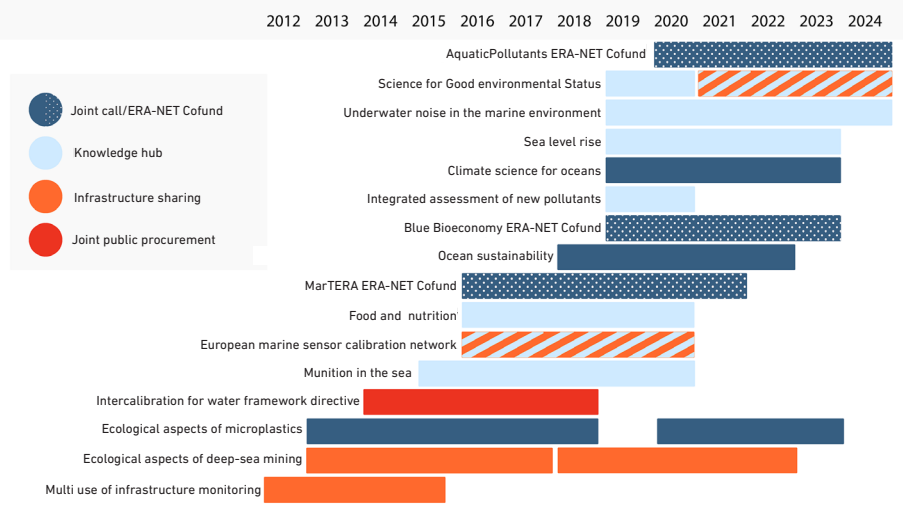
## MEDITERRANEAN BLUE ECONOMY STAKEHOLDER PLATFORM

The [Mediterranean Blue Economy Stakeholder Platform](#) allows relevant actors across the region to work together across sectors and engage in sector-specific partnerships, to address gaps in access to knowledge and innovation, while fostering a sustainable blue economy across the seabasin.



# JPI OCEANS

The Joint Programming Initiative Healthy and Productive Seas and Oceans ([JPI Oceans](#)) is an intergovernmental platform, open to all EU Member States and Associated Countries who invest in marine and maritime research. Joint Actions are identified to implement the Strategic Research and Innovation Agenda. The size, scope and methods identified for each action vary depending on the research needs and the objectives to be achieved.



Source: [jpi-oceans website](#)

# THE COPERNICUS MARINE SERVICE

[The Copernicus Marine Service](#) offers ocean hindcast (historical) and forecast data. It comes from satellites, direct ocean sampling, and numerical models for the global ocean. Monitoring Indicators (OMIs) are available, as well as an extensive scientific report published periodically with over 30 institutions and over 100 scientists.

# SUSTAINABLE FINANCING OPPORTUNITIES

A number of sustainable financing opportunities, public and private, are increasingly being made available for the blue sectors across the Mediterranean. These are essential opportunities which should be captured locally. It is vital to support the opportunities emerging in transforming blue economy research into competitive business models, products and services to be financed by sustainable investors. The roles of public bodies and Development Agencies are pivotal in bridging research and innovation potentials with business development

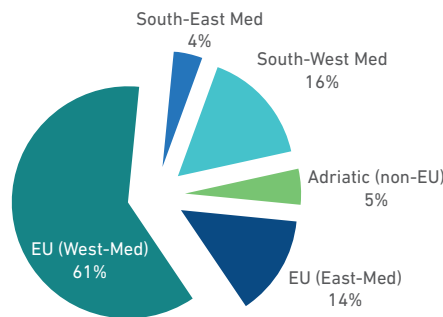
# MARITIME CLUSTERS

Maritime Clusters are organisations of interconnected companies, associated institutions, research bodies and other actors. As such, they are essential drivers for the uptake of innovation by businesses and other stakeholders in essential areas for a sustainable blue economy in the Mediterranean.

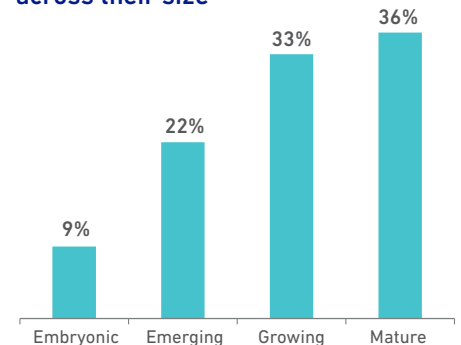
They are also an important player in the engagement with sustainable investors interested in financing innovative and appealing sustainable enterprises. In order to be fully effective, maritime clusters in the Mediterranean require greater support so to boost their overall capabilities and level of maturity and ability to network and engage with relevant actors in the seabasin.



Distribution of the maritime clusters across the Med



Distribution of the maritime clusters across their size



Source: [Maritime Clusters in the Mediterranean Region](#) (UfM 2019)

# MARINE LITTER

In the Mediterranean Sea



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## CROSS-CUTTING THEME

- ▶ Litter is a major threat to marine biodiversity and healthy ecosystems
- ▶ Plastic pollution represents a transboundary problem and thus it requires global coordination and long-term multiple approaches to develop shared solutions
- ▶ Mediterranean Sea is strongly impacted by marine litter of different size found along the coastlines, floating both on the surface and on the water column down to the seafloor. Currently, Mediterranean is one of the seas more affected by plastic pollution at world scale, with record levels of microplastics
- ▶ Rivers are important pathways through which marine litter enters the coastal and maritime environment. Moreover, the semi-closed Mediterranean basin favors accumulation of litter to a greater degree than in the open oceans
- ▶ Although there is increasing evidence on the amount, composition and distribution of marine litter in the Mediterranean Sea basin, challenges to evaluate the impact of marine litter in the region persist

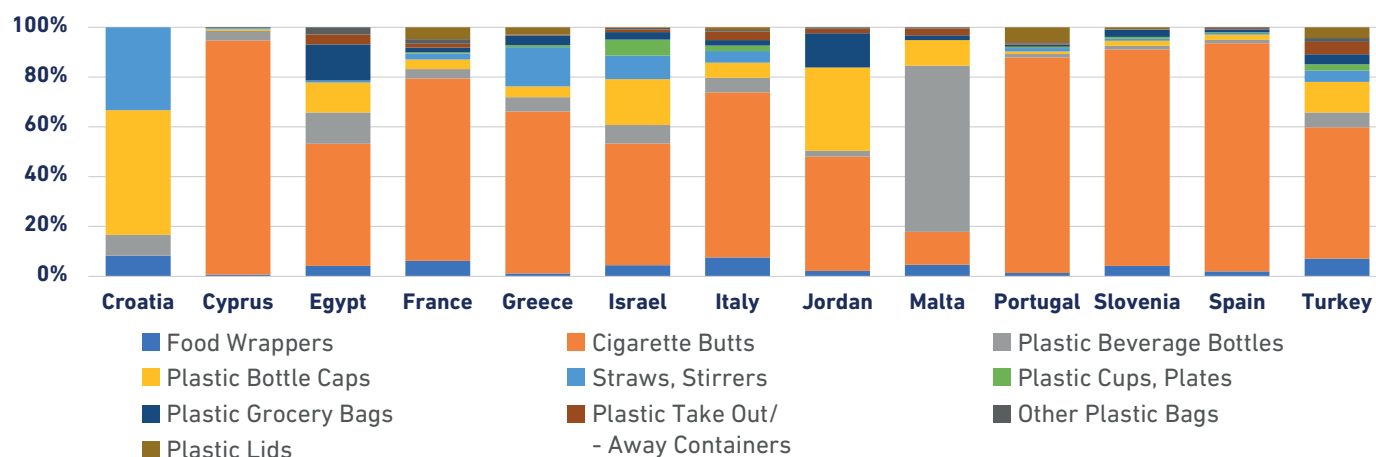
## CHALLENGES

- ▶ It is estimated that plastics and microplastics account for 70-90% of the total composition of marine debris in this sea basin
- ▶ 0.57 million tons of plastic are released into Mediterranean waters every year, which is equivalent to 33.800 plastic bottles thrown into the sea every minute
- ▶ Approximately 62 million macro-litter items are estimated to be floating on the surface of the entire Mediterranean basin
- ▶ It has been largely demonstrated that marine litter directly affect living organisms, especially due to macro-plastics presence and micro-plastics ingestion, threatening marine species and consequently human health
- ▶ Thus, Mediterranean plastic pollution not only represents a serious risk for the local environment and human health, but also for the key economic sectors that rely on sea resources

## OPPORTUNITIES

- ▶ Relevant Mediterranean-wide initiatives and projects tackling Marine Litter exist ([BLUMED Pilot for a Plastic Free Mediterranean Sea](#), [Plastic Busters MPAs](#), [COMMON](#))
- ▶ Relevant Mediterranean-wide initiatives and projects tackling Marine Litter exist ([BLUMED Pilot for a Plastic Free Mediterranean Sea](#), [Plastic Busters MPAs](#), [COMMON](#))

## Top 10 marine litter items collected in the Mediterranean Sea



Source: [International Coastal Cleanup \(2020\)](#). Note that no data was gathered for Albania, Algeria, Bosnia and Herzegovina, Lebanon, Libya, Monaco, Montenegro, Morocco, Palestine, Syria and Tunisia

- ▶ Plastics litter in the Mediterranean coastal areas is usually found in the form of packaging, bags, wrappers, and fisheries-related objects
- ▶ Main sources of marine litter include poorly managed urban waste
- ▶ The Mediterranean region accounts for some of the largest amounts of Municipal Solid Waste generated annually per person and has insufficient waste processing infrastructure

# EMPLOYMENT



## Trends

- ▶ Addressing marine litter requires greater sources of information and data to be generated and gathered
- ▶ It can offer a wide range of employment opportunities through time, ensuring that fully-sustainable processes and models are set in place.

## Skills

- ▶ Skills in gathering and collecting relevant cross-regional data are pivotal
- ▶ Greater understanding of the economic return potentials in addressing litter-free solutions for businesses
- ▶ Multi-stakeholders voicing and committing to a litter-free blue economy is essential.

## Youth & Women

- ▶ Advocacy for a litter-free blue economy can find an essential ally in youth across the region
- ▶ It can offer new jobs as for those groups as it opens for new niches of jobs and markets locally for new generation and women currently not included in economic activities.

## PLASTIC BUSTERS



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COMMON

Plastic Busters has been labelled by the UfM and funded by InterregMed (Plastic Busters MPAs) and CBC (COMMON)

Plastic Busters MPAs provides a comprehensive, multifaceted and coordinated approach to fight marine litter in Mediterranean coastal and marine protected areas towards healthy marine ecosystems. It does so by addressing the entire litter-management cycle, developing ML monitoring protocols and running mitigation actions

Coastal Management and Monitoring Network (COMMON) for tackling marine litter in Mediterranean sea applies the Integrated Coastal Zone Management (ICZM) principles to the challenge of marine litter

## BLUEMED



The BlueMed Pilot action, launched in 2018, consists in mapping and assessing the actions on place regarding marine plastic pollution across the Mediterranean. It promotes the circulation of good practices, R&I actions but also demonstration, communication and educations actions specifically addressed to face the challenges posed by marine litter

## MARINE LITTER SOLUTIONS

Increased, long-term information and reliable knowledge base on marine litter and its impacts on biodiversity and humans for the whole Mediterranean	Harmonized protocols for monitoring and assessing marine litter in the various marine compartments, and its impacts on biodiversity	Empowered local managers (especially in Protected areas) with the necessary tools and knowledge to tackle marine litter
Clearly defined baselines and targets to measure trends and progress	Effective cross-border and cross-sector cooperation and coordination at the Mediterranean scale in the implementation of existing policies	Improved waste management practices
Design for Life Cycle, upcycling and/or recycling	Commitments to circular economy approaches, including recycling and strict policies to combat plastic pollution	Industry should continue its efforts to curtail virgin plastic use and increase plastic recycling to live up to their corporate social and environmental responsibilities
Eco labelling and Environmental Management Systems	Marking and retrieval of fishing gear	Promoting best practices (i.e. fisheries, tourism, diving, etc.)



# MARITIME SKILLS, CAREERS and EMPLOYMENT

In the Mediterranean Sea



The UfM Secretariat is co-funded by the EUROPEAN UNION



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## CROSS-CUTTING THEME

- ▶ In 2015 (Plan Bleu) the large majority of jobs in the blue economy for the Mediterranean has been related to the tourism sector. Over 10% of total regional blue economy employment is represented by maritime transport and about another 10% by the fisheries sector
- ▶ In recent years an acceleration of jobs in the aquaculture sector has been visible, with unassessed potentials remaining in other emerging sectors such as blue-biotech and renewable marine energy
- ▶ The potential exists for a wide range of new employment opportunities to be enabled by a fully sustainable blue economy
- ▶ Innovative skill-sets are essential in the region – training and education are therefore needed across maritime-related professions, to support technological developments and address environmental challenges
- ▶ Targeted educational and employment policies should carefully reflect on regional specificities to be effective as a means to ensure greater career opportunities and quality jobs in the blue economy across the region
- ▶ Networks and pedagogic tools are already available but need to be further shared across regional actors

## CHALLENGES

- ▶ Educational support requires great cooperation through decentralised approaches to address existing gaps
- ▶ A mismatch persists between the skills of the labour force and the evolving needs of the industry

## OPPORTUNITIES

- ▶ Great potential for further bridging and linking the two rims of the sea-basin (e.g. through programs such as Interreg and CBC)
- ▶ range of areas emerge for proper training of public and private actors as well as researchers, to anticipate transformative trends and promote just transitions
- ▶ Sector-specific partnerships offer a means to develop and implement strategies to address skill gaps, including through public and private partnerships
- ▶ Building on existing good practices across the region, it is possible to achieve further developments in vocational skills as well as in short term training and lifelong learning
- ▶ Maritime clusters offer a direct opportunity to address skills/jobs issues, including through the upskill and reskill of professionals across the blue economy sectors

The [BLUEMED Implementation Plan](#) outlines the context of marine graduate training, highlighting the current mismatch between the needs of policy and industry

## MATCHING POLICY AND INDUSTRY NEEDS

Develop a <b>network of capacity-building and research centers</b> to train new professionals on sampling, recording and working at marine level for environmental, engineering and scientific studies	Align high education curricula, establish <b>joint MSc, PhD programs, short term scientific exchanges</b> , to prepare the next generation of blue-economy scientists, technologist and entrepreneurs	Develop an electronic platform for <b>e-mentoring of young start-uppers</b> in blue growth acting like a virtual incubator to create a lively ecosystem of entrepreneurs of innovation
Co-develop <b>training courses and knowledge exchange activities</b> to improve the level of institutional, technical and human capacities at national level for the implementation of Maritime Spatial Planning and Maritime Governance	Improve Mediterranean <b>training centers and capabilities</b> to carry out projects that ensure safety in oil & gas offshore operations, including environmental risk and new technologies	Develop <b>new modalities of training</b> security operators, exploiting the opportunities offered by the augmented reality technique
Exploit new <b>digital technologies for training purposes</b> , with solutions based on Virtual Reality or Augmented Reality	Promote capacity building to <b>increase resilience</b> of Mediterranean countries	Train a <b>new generation of marine technicians/scientists</b> to conduct research on the protection of the marine cultural heritage

# EMPLOYMENT



## Trends

- ▶ The potential for upskilling and reskilling in the blue economy sectors could increase growth and employment opportunities
- ▶ Important role of digitalisation as transformative enabler towards an innovative and sustainable blue economy

## Youth & Women

- ▶ Innovative new technologies can find an essential leading role in youngster and women across the region
- ▶ Developing new local niche jobs and markets for youth and women currently not included in economic activities

## CONCLUSIONS FROM THE 1ST REGIONAL UFM SEMINAR ON BLUE SKILLS, CAREERS, JOBS (19/11/2019, Brussels)

Propagate the use of the <b>Med Blue Economy Platform (VKC)</b> as a platform for exchange of information/ pedagogic tools/projects and contact - smart specialization strategies	Work towards sharing and opening <b>access to information and data</b> on skills employment issues	Enhance <b>mobility programs and operational internships</b> (i.e. <b>OGS Deep Blue programme</b> ) and request to loosen eligibility and participation conditions to EU programmes that address skilling and careers (as in Erasmus+, Interreg, various EMFF, etc.)
Keep track of <b>coaching/mentoring/matchmaking</b> needs (i.e. <b>Med4jobs Initiative, MENTOR project, MARINEM project</b> )	Foster <b>competences and skills</b> on on digitalisation, environment, soft skills and technical skills, security, entrepreneurship, socio-economics, multi-disciplinary approaches, social media, languages, statistics, law and maritime spatial planning	Introduce more <b>multi-disciplinarity approaches</b> in the trainings
Raise <b>awareness/sensibilisation tools</b> about new professional careers (open days, high level orientation etc.)	Address the <b>mismatch</b> between the education curricula and skillset needed by the market	Develop <b>vocational skills</b> in the Med: VET training as well as short term training/lifelong learning are required more than university degrees. In general, training that links directly to employers is needed

### Knowledge enablers

Key enabling knowledge for the Mediterranean

### Economy enablers

Key sectoral enablers in the Mediterranean



### Technology enablers

Enabling technology and capacity creation for the Mediterranean

### Cross-cutting enablers

for Blue Jobs and Blue Growth



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