

# MODULE 7 – BLUE ECONOMY SOLUTIONS

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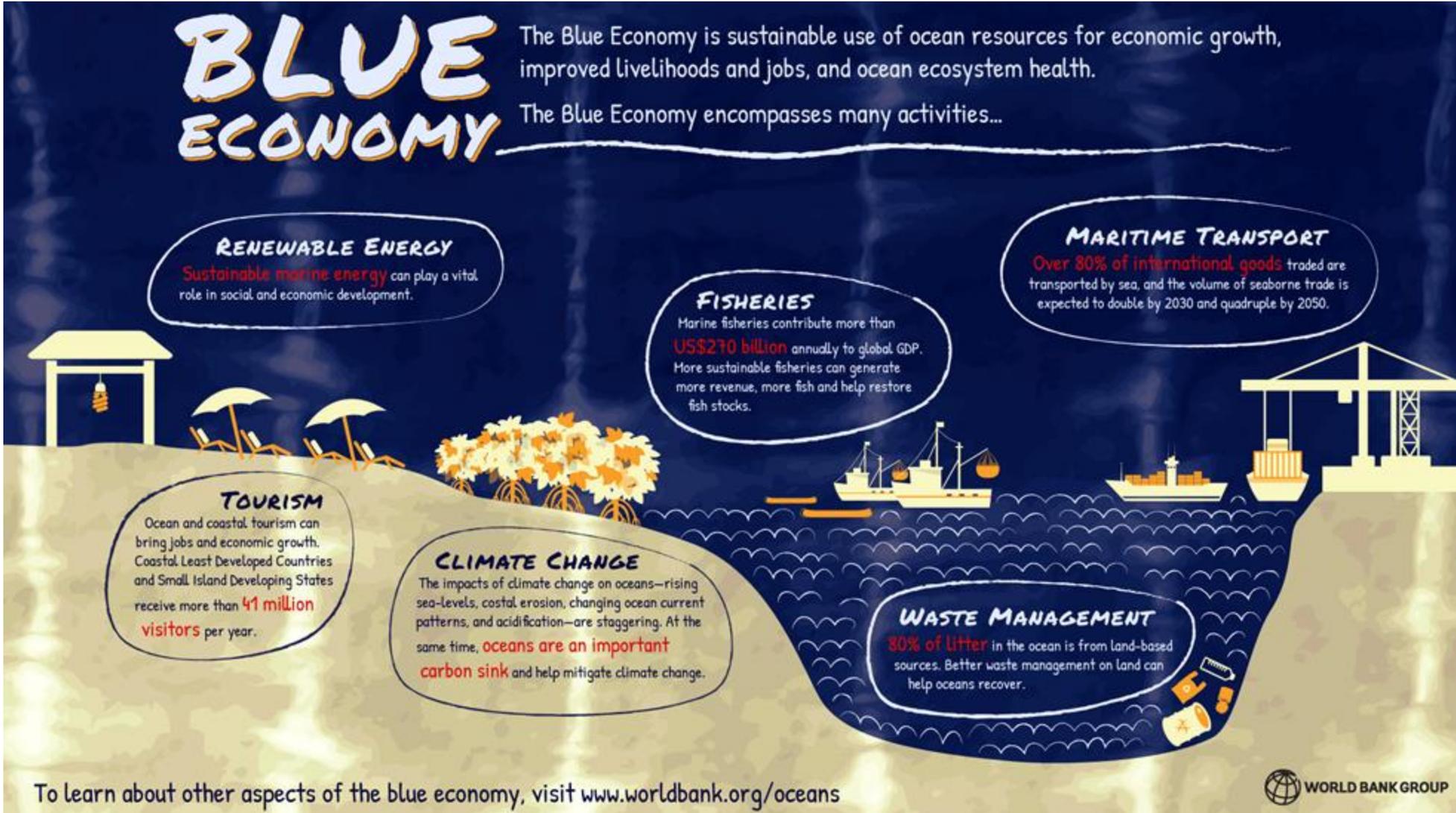


*This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No:101000240.*

# Outline of this module

- **Definition** of the Blue Economy
- **Drivers for the Blue Economy** in the Black Sea (and beyond)
- **Blue Economy status and opportunities** in the Black Sea
- **BRIDGE-BS support** for an innovative Blue Economy
- **Possible next steps** to maximise BRIDGE-BS support

# Introduction to the Blue Economy Concept



**BLUE ECONOMY**

The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

**RENEWABLE ENERGY**  
Sustainable marine energy can play a vital role in social and economic development.

**FISHERIES**  
Marine fisheries contribute more than **US\$270 billion** annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

**MARITIME TRANSPORT**  
Over **80% of international goods** traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

**TOURISM**  
Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than **41 million visitors** per year.

**CLIMATE CHANGE**  
The impacts of climate change on oceans—rising sea-levels, coastal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, **oceans are an important carbon sink** and help mitigate climate change.

**WASTE MANAGEMENT**  
**30% of litter** in the ocean is from land-based sources. Better waste management on land can help oceans recover.

To learn about other aspects of the blue economy, visit [www.worldbank.org/oceans](http://www.worldbank.org/oceans)

 WORLD BANK GROUP

# EU Strategic Approach to the Blue Economy



It is built around **six priorities**

1. Protecting and restoring ocean health
2. Boosting the competitiveness of the EU sustainable blue economy
3. Supporting coastal and island communities, and outermost regions
4. Advancing ocean research, knowledge, skills and innovation
5. Enhancing maritime security and defence
6. Strengthening EU ocean diplomacy and international ocean governance



## Three pillars for future EU-Black Sea cooperation

Future cooperation with the Black Sea region is structured under three pillars:

- Enhancing **security**, stability, and resilience;
- Fostering sustainable **growth** and prosperity;
- Promoting environmental protection, climate change **resilience** and preparedness, and civil protection.

# Blue Economy in the Black Sea: Policy Framework



Ministerial Declaration in Burgas, 'Towards a Common Maritime Agenda for the Black Sea', in May 2018



Common Maritime Agenda for the Black Sea (CMA) in May 2019

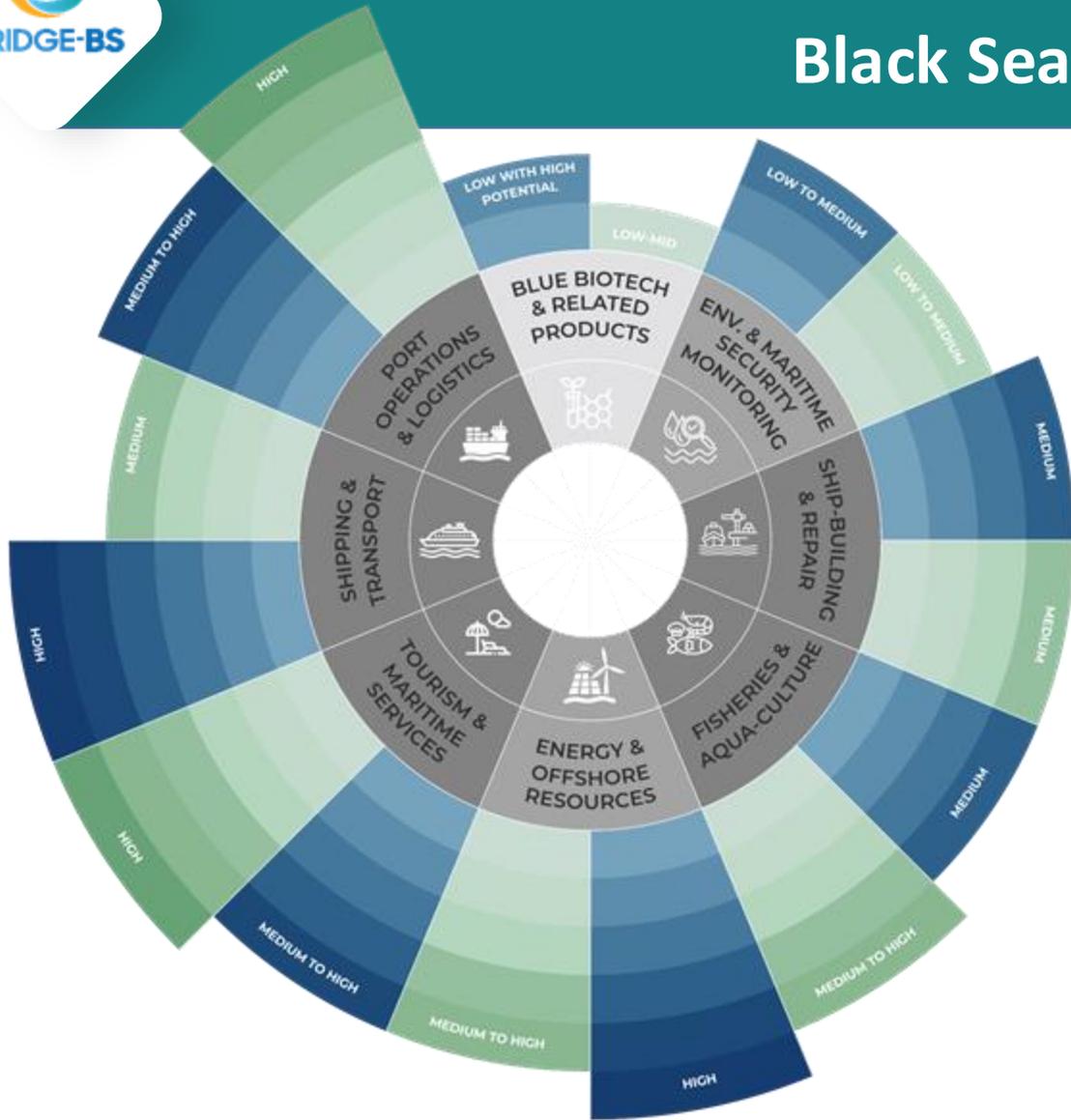


Black Sea Strategic Research and Innovation Agenda (SRIA) as the scientific pillar of the CMA,



New European Ocean Pact and Black Sea Strategy are essential elements for the EU to drive the use of the sea in the Black Sea

# Overall Trends In GVA and Employment In The Black Sea Blue Economy



Defining business models for Black Sea maritime sectors in terms of Gross Value Added (GVA) and jobs requires sectoral analysis, as economic contribution and employment vary by sector.

GVA, the difference between output and intermediate consumption, measures each sector's economic role. In the context of the Black Sea, GVA contribution can be defined by sector with their key drivers to consider for GVA increase.

## KEY OPPORTUNITIES FOR GVA AND JOBS

### JOB AUTOMATION

Technological advancements, particularly in **ports and shipping**, may reduce the number of **low-skilled jobs**, but create more opportunities for **high-skilled positions** in technology and engineering.

### SUSTAINABILITY

As environmental regulations tighten, sectors such as **shipping, fisheries, and energy** will need to adapt, which could shift the nature of employment toward more **sustainable** and **technologically advanced** roles.

### GROWTH IN RENEWABLE ENERGY

The development of **offshore wind farms** presents opportunities for both **GVA** and **job creation** in the medium-to-long term, particularly in **construction, maintenance, and energy management**.



## ^ Ports, Transport, and Logistics

Port activities and maritime transport, with the related logistics services and infrastructures, are historically one of the most performing blue economy activities for the Black Sea.<sup>[1]</sup> several challenges, both regional<sup>[2]</sup> and global<sup>[3]</sup>, have increasingly threatened the sustainability of the sector and new innovative practices and solutions are vital for its transformation such as decarbonization of transport. Amongst those transformations, is the transition towards the concept of Green Ports,<sup>[4]</sup> aimed at fostering energy-efficient and sustainable sources for port activities, and new business strategies to face a global crisis.<sup>[5]</sup>

***Some examples of marketable solutions*** for ports, transport, and logistics, supported by the BRIDGE-BS Accelerator include (but are not limited to): solutions and services aimed at fostering ports as 'decarbonization hubs', digital solutions to improve real-time port and logistics management, innovative (green) port infrastructures and business services towards short-sea shipping promotion in the region, introduction electrified ships and other vehicles to the Black Sea region, etc.



## ^ Fisheries and Aquaculture Practices



Fisheries is another relevant activity for the region which is increasingly regulated to avoid illegal and unsustainable practices.<sup>[1]</sup> Globally, marine aquaculture has emerged in the past decade as a viable solution for an effective option in the exploitation of marine resources for the production of food and added-value products/services.<sup>[2]</sup> The Black Sea has recently seen a similar pattern in the growth of aquaculture practices, although currently challenged by the regional crisis, but greater sustainable innovation is needed to make the sector fully profitable and respectful of local ecosystems.<sup>[3]</sup>

**Some examples of marketable solutions** for fisheries and aquaculture supported by the BRIDGE-BS Accelerator include (but are not limited to): sustainable (bio) feeding, real-time tracking of captures, bycatch reduction solutions, efficient monitoring including fish health, optimization of food distribution and overall management, added-value of waste, blue-biotech, algae, and other advanced means for economic gain through product diversification, including circular models for waste management, circulating aquaculture systems, etc.



## ^ Tourism and Recreational Activities



Coastal and maritime tourism is yet another important sector for the Black Sea, although still largely concentrated on certain limited destinations and large-scale 'traditional' offers.<sup>[1]</sup> The current model offers limited gains to local communities and implies negative impacts on local coastal and marine ecosystems.<sup>[2]</sup> Greater potentials should therefore be exploited towards small-scale and innovative touristic solutions and products, greater sustainability and ecosystem protection, as well as the adoption of digital and remote solutions.<sup>[3]</sup> These are all valuable niches for new business opportunities.<sup>[4]</sup>

**Some examples of marketable solutions** for sustainable coastal and maritime tourism and recreational activities, supported by the BRIDGE-BS Accelerator, include (but are not limited to): new products/services for sustainable access (including virtual) to cultural and naturalistic experiences, including sustainable touristic exploitation of underwater natural heritage, digital solutions and applications enabling augmented touristic offers, new (green) infrastructures including digital services for yachting and marinas, etc.



## ^ Blue Biotech and Related Products

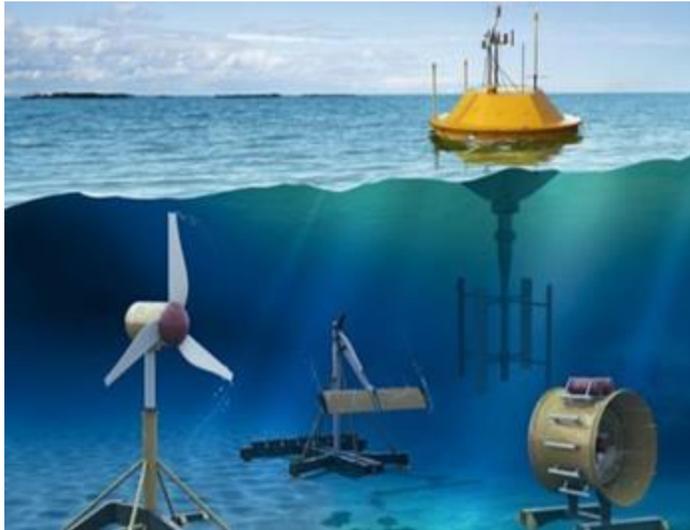
The commercial exploitation of marine organisms and their biomass is a fast-growing sector across all European sea basins and as such offers great economic opportunities to the Black Sea.[1] The production of such organisms is closely linked with advanced aquaculture solutions and associated with the use of renewable aquatic biological biomass, e.g. food additives, animal feedstuffs, pharmaceuticals, cosmetics, and energy. This is a high-rated niche for investors.[2]

***Some examples of marketable solutions*** for blue biotech and related products, supported by the BRIDGE-BS Accelerator, include (but are not limited to): cellular mariculture,[3] cosmetics and pharmaceuticals, crop nutrition/bio-fertilizers, bio-packaging and innovative applications including textile fibers, laundry detergents, construction materials, and biochar for soil improvement, as well as contribute to ecosystem services: carbon sequestration, removal of nutrients and CO<sub>2</sub>, ecosystem support, ocean habitat restoration, coastal ecosystem resilience, etc.





## ^ Sustainable and Renewable Marine Energy



Sustainable and renewable marine energy solutions[1] are increasing their path of development[2] across all European sea basins,[3] also as a response to the current global energy crisis[4], although with different levels of uptake and potential.[5] In the Black Sea, the sector is still very embryonic with some potential for offshore wind.[6] Support in the Black Sea would include greater data generation and assessment/monitoring of energy potentials, as well as relevant policy (including Maritime Spatial Planning) as well as the development of support services for the grid[7] – with port activities having a great potential in becoming renewable-energy hubs[8] for the region and beyond.

***Some examples of marketable solutions*** for sustainable and renewable marine energy supported by the BRIDGE-BS Accelerator include (but are not limited to): data analytics services, innovative tools, and platforms for renewable marine energy deployment, added-value services across value-chain, etc. This is an embryonic sector so any support service and technology enabling its growth would be considered.



## ^ Ocean Observation and Monitoring

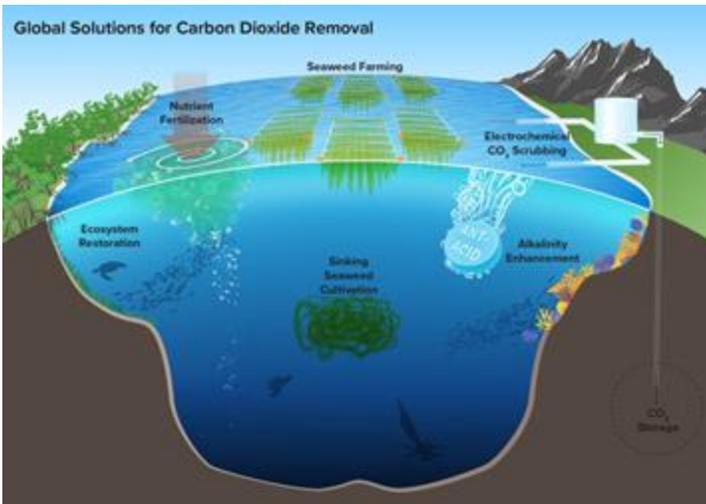
By playing a catalytic role in support of the blue economy and the development of sustainable practices for marine and maritime applications, marine and coastal observation and monitoring contribute to keeping our oceans healthy and conserving biodiversity, monitoring climate change, and fostering a sustainable blue economy.<sup>[1]</sup> Observation and monitoring of marine and coastal ecosystem quality – through the assessment of the impact of man-made activities, the conditions for sustainable exploitation of local ecosystems, as well as the assessment of policy baselines and monitoring of sectoral impact through time – allow for the development of complex value chains. These include data collection, transformation of such data into information and services, and offering the potential for the establishment of innovative start-ups and new businesses across the Black Sea region.

***Some examples of marketable solutions*** for coastal and maritime monitoring and observations, supported by the BRIDGE-BS Accelerator, include (but are not limited to): cost-effective real-time monitoring, automated underwater/aerial drones, and sensors, applications offering water-quality assessments to aquaculture farms, immersive reality offering remote touristic experiences, surveillance and monitoring services for Port Authorities, data services for decision-making actors in the market, etc.





## ^ Nature-based Solutions and Services



Nature-based solutions are defined as solutions that are inspired and supported by nature, which are cost-effective, simultaneously providing environmental, social, and economic benefits and helping to build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes, and seascapes, through locally adapted, resource-efficient, and systemic interventions.[1]

**Some examples of marketable solutions** for coastal and marine nature-based solutions include (but are not limited to): eco-designed marine infrastructures, biomimicry applications, carbon sequestration, etc. with linkages to relevant sectors such as sustainable aquaculture, and nature-based tourism.[2]



## BRIDGE-BS

**Advancing knowledge, delivering research, empowering citizens for sustainable and climate-neutral Black Sea**

BRIDGE-BS aims to advance the Black Sea's marine research and innovation to co-develop Blue Growth pathways under multi-stressors for the sustainable utilization of ecosystem services. To do so it will develop an ecosystem-based management framework to enable policy uptake and foster citizen engagement.

## BLACK SEA ACCELERATOR FOR A SUSTAINABLE BLUE ECONOMY

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Jointly promoted and managed by the **BRIDGE-BS** and **DOORS** projects, the **Black Sea Accelerator (BSA)** is a comprehensive initiative designed to foster the development of innovative blue economy projects aimed at sustainable growth in the Black Sea region. The BSA offers a **range of targeted activities**, including training sessions, workshops, and expert discussions, all geared toward supporting blue economy innovators. Selected participants receive **free assistance** to scale up their business ideas and gain access to **valuable funding and investment** opportunities. The main target is **Black Sea-based eligible organizations** such as companies, start-ups, organizations, and universities, but the program also welcomes **non-regional applicants** interested in extending their solutions in the region.





# BLACK SEA ACCELERATOR FOR A SUSTAINABLE BLUE ECONOMY

*Facilitated by BRIDGE-BS and DOORS Projects*

More than 40 applications were submitted in response to two calls,  
with select applications receiving BSA support.

### **BOATMATE**

Murat Gürhan, Türkiye -  
Yachting/Marinas

### **BOATSANDCO**

Antonio Amendola, Italy & Bulgaria  
- Yachting/Marinas

### **HydrocollacoidBS**

Kubilay Yıldırım, Türkiye -  
Algae/Biotechs

### **GALERA 07 LTD**

Andrei Stanev, Bulgaria - Ports,  
Transport & Logistics

### **RDFind**

Cristina Dragomir, Romania - Other

### **TRESOIL Power2X**

Roger Preston, Romania - Pollution  
Management & Green Energy and  
Transport

### **R.E.N.E.W Nets**

Tatiana Sitchinava, Georgia -  
Pollution, Fisheries & Aquaculture

### **13 MARI**

Krassi Fotev, Bulgaria - Ports,  
Transport & Logistics

### **TramshipOS**

Jaba Tarimanashvili, Georgia -  
Ports, Transport & Logistics

### **BIOCRAC / BS-PYRO**

Bozhil Kondev, Bulgaria - Fisheries  
& Aquaculture, Tourism and  
Recreation

### **RECYLLUX**

Scrina Ueila, Romania - Pollution,  
Observation & Monitoring

### **AQUAFEDPRO**

Lasha Kakhidze, Vazha Trapaidze,  
Irine Baramidze, Georgia -  
Aquaculture

### **MINDS**

George Triantaphyllidis, Ukraine,  
Greece - Pollution, Marine Waste

### **MARITIME COUNCILOR**

Arthur Nwabufu, Germany &  
Romania - Maritime Transport

### **GREEN TECH PORTABLE POWERSTATION**

Burak Caçar, Türkiye - SMEs

# BRIDGE-BS Support the Innovation Community



# Take Home Messages: potentials for a sustainable blue economy

- **An innovative and sustainable blue economy has great potentials:**
  - **to build a resilient Black Sea, reduce anthropisation and support coastal communities**
  - **to offer great opportunities in matter of GVA and job creation across the Black Sea**, in established sectors (decarbonization, sustainability, circularity) and in emerging sectors (e.g. biotechnologies, renewable energies)
- To fulfill such potentials the region must **ensure adequacy of skills/trainings and capacities - human, institutional and financial** - which allow to fully address the Black Sea specificities
- **BRIDGE-BS Black Sea Accelerator (BSA) & High-tech Summit (HTS):**
  - has identified and supported local innovative solutions able to scale up regionally
  - requires further support for local readiness of socio-economic, and financial actors
- **Further action is needed to maximise and streamline BRIDGE-BS support**
  - set-up effective local and regional incubation, acceleration and financing mechanisms
  - allow for a greater regional policy support and dialogue in those areas to support innovation



# THANK YOU!



**STAY TUNED!**

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