

# Advancing Black Sea Research and Innovation to Co-Develop Blue Growth within Resilient Ecosystems – BRIDGE-BS



**Pinar Uygurer, BRIDGE-BS Project Manager**

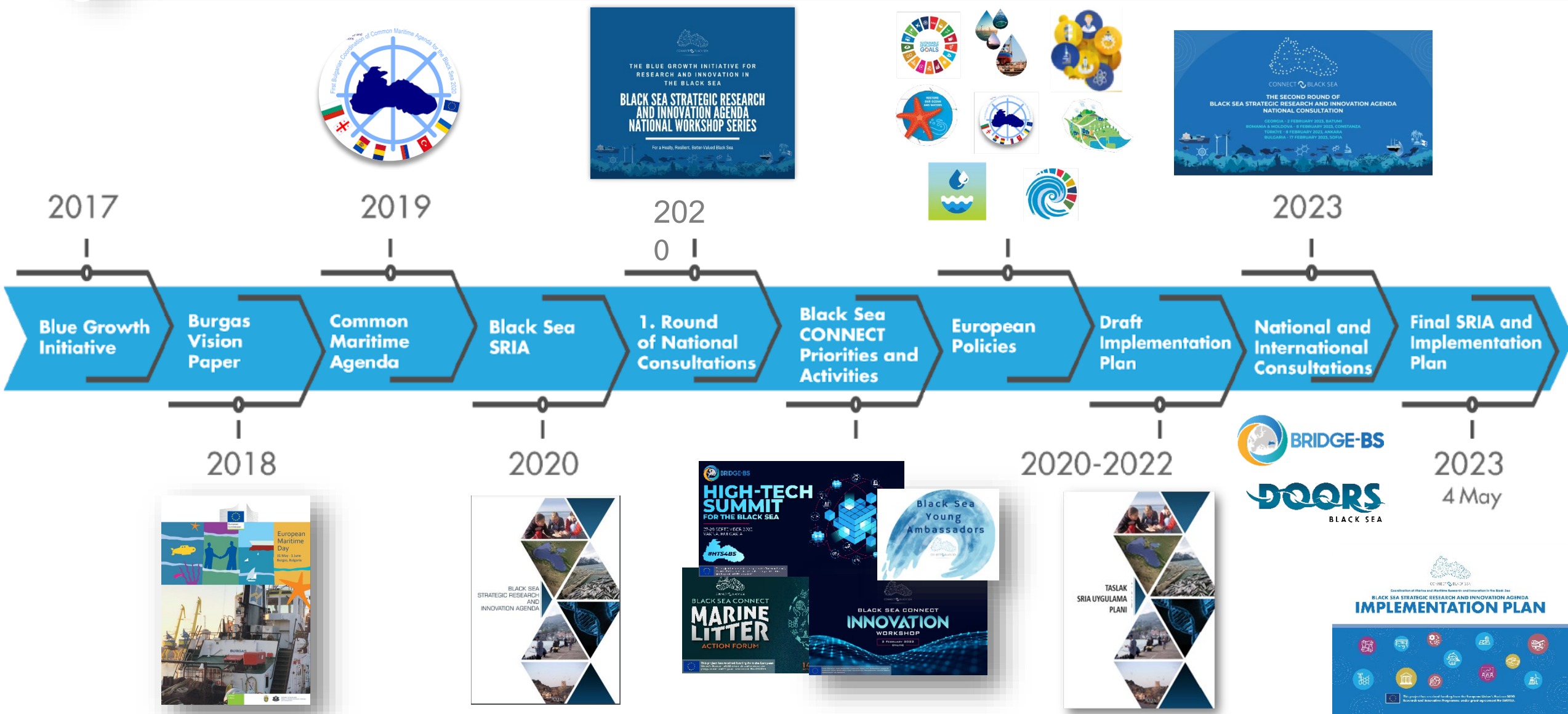
**Middle East Technical University**

**Institute of Marine Sciences**

# TODAY'S AGENDA

10:00	<p>Introduction Presentation of the BRIDGE-BS project and the scenario's framework</p> <p><b>Barış Salihoğlu, BRIDGE-BS Coordinator, METU (15 mins)</b></p>
10:15	<p>Prospective scenarios for Black Sea basin level: Prospective exercise on the possible futures of the blue economy in the Black Sea based on 2 key variables: the level of innovation and governance</p> <p><b>Clément Dupont, SML (15min + Q&amp;A)</b></p>
10:45	<p>The transformative pathways: Co-design of a 2050 roadmap of actions, with local stakeholders, able to transform key blue economy sectors to reach stakeholders' desired futures</p> <p><b>Alice Guittard, AUEB (15min + Q&amp;A)</b></p>
11:15	<p>Analyzing environmental effects of future scenarios / Sea Basin + Black Sea regions: Co-design of future scenarios capitalizing from Living Labs and prospective scenarios followed by quantitative and spatially-explicit analysis using a Risk Based Cumulative Effect Assessment tool.</p> <p><b>Sofia Bosi CNR, (15min + Q&amp;A)</b></p>
11:45 – 12:00	<p>General Discussion and Wrapping up</p>

# BLACK SEA SRIA ECOSYSTEM

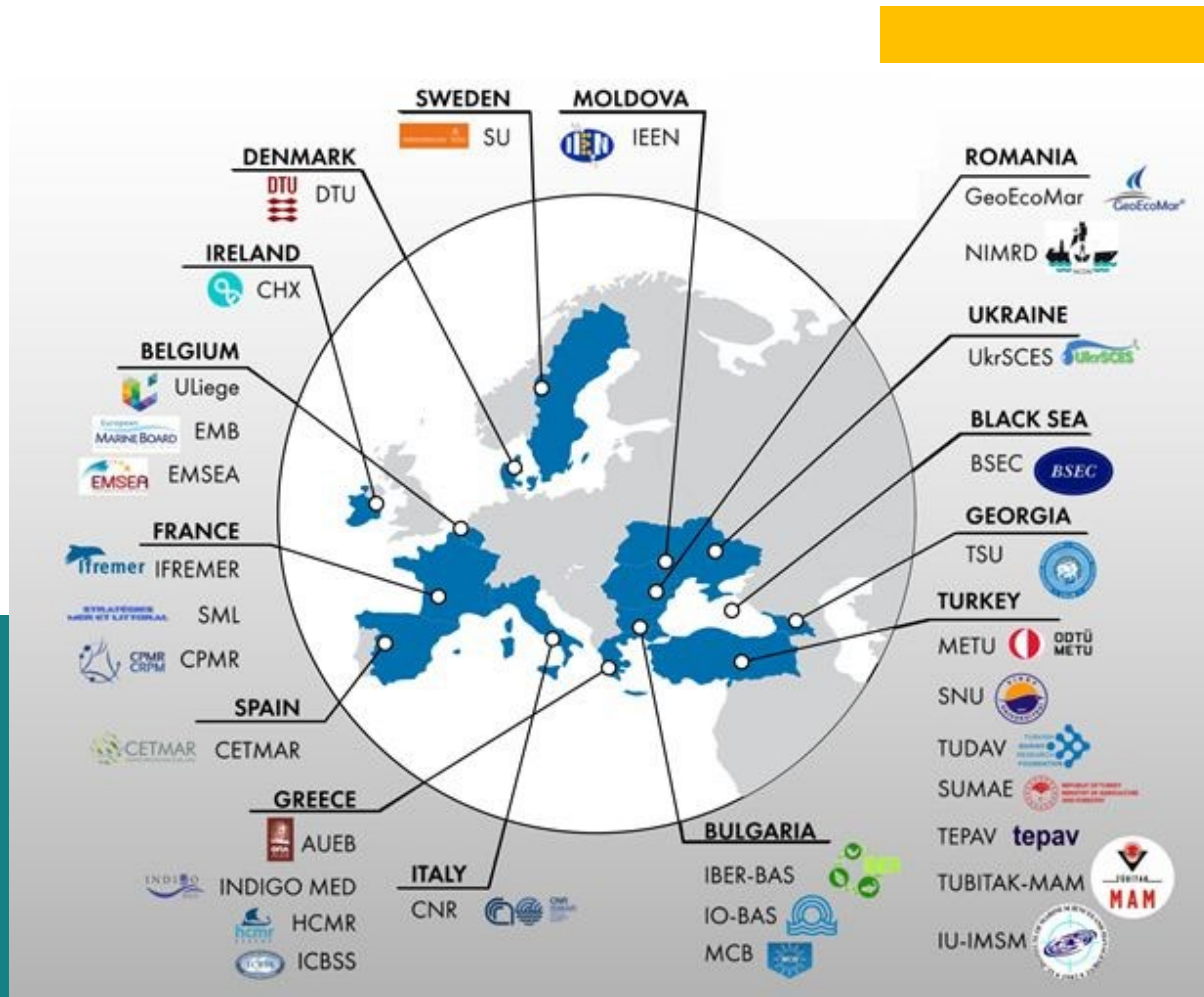




Developed under the **H2020 funded Black Sea CONNECT CSA**, the Implementation Plan of Black Sea SRIA (Strategic Research and Innovation Agenda) offers a common vision for a sustainable, healthy and resilient Black Sea.



# ADVANCING BLACK SEA RESEARCH AND INNOVATION TO CO-DEVELOP BLUE GROWTH WITHIN RESILIENT ECOSYSTEMS: BRIDGE-BS



## Horizon 2020

**Call:** H2020-BG-2018-2020 (Blue Growth)

**Topic:** LC-BG-09-2019

**Type of action:** Research and Innovation Action

**Proposal number:** 101000240

**Project acronym:** BRIDGE-BS

**Duration:** 06.2021-12.2025

**Coordinator:** METU IMS (Türkiye)



**BRIDGE-BS**

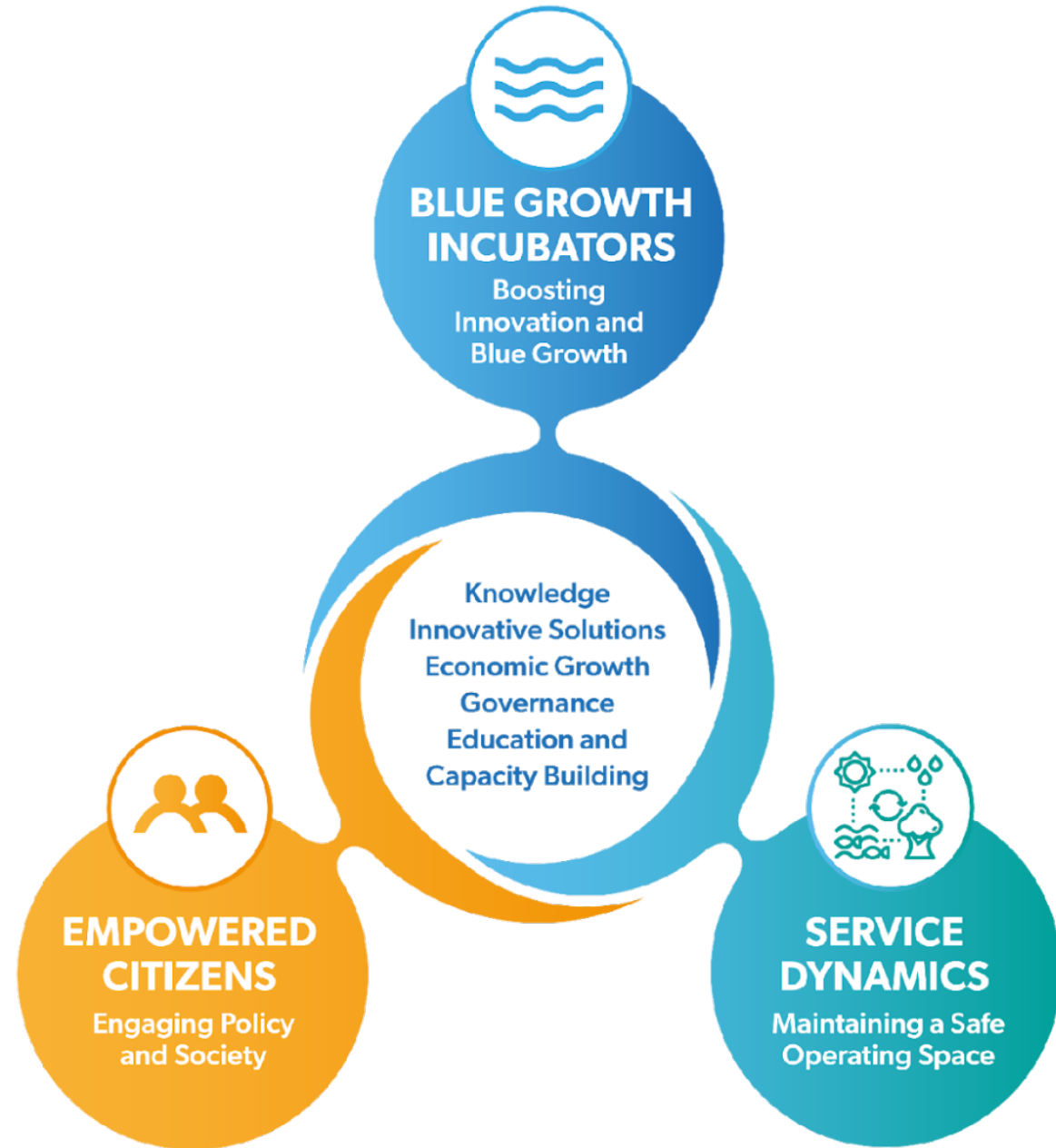
Blue Growth Incubators | Service Dynamics | Empowered Citizens



# BRIDGE-BS Objectives

BRIDGE-BS will advance knowledge and deliver research under three NODES

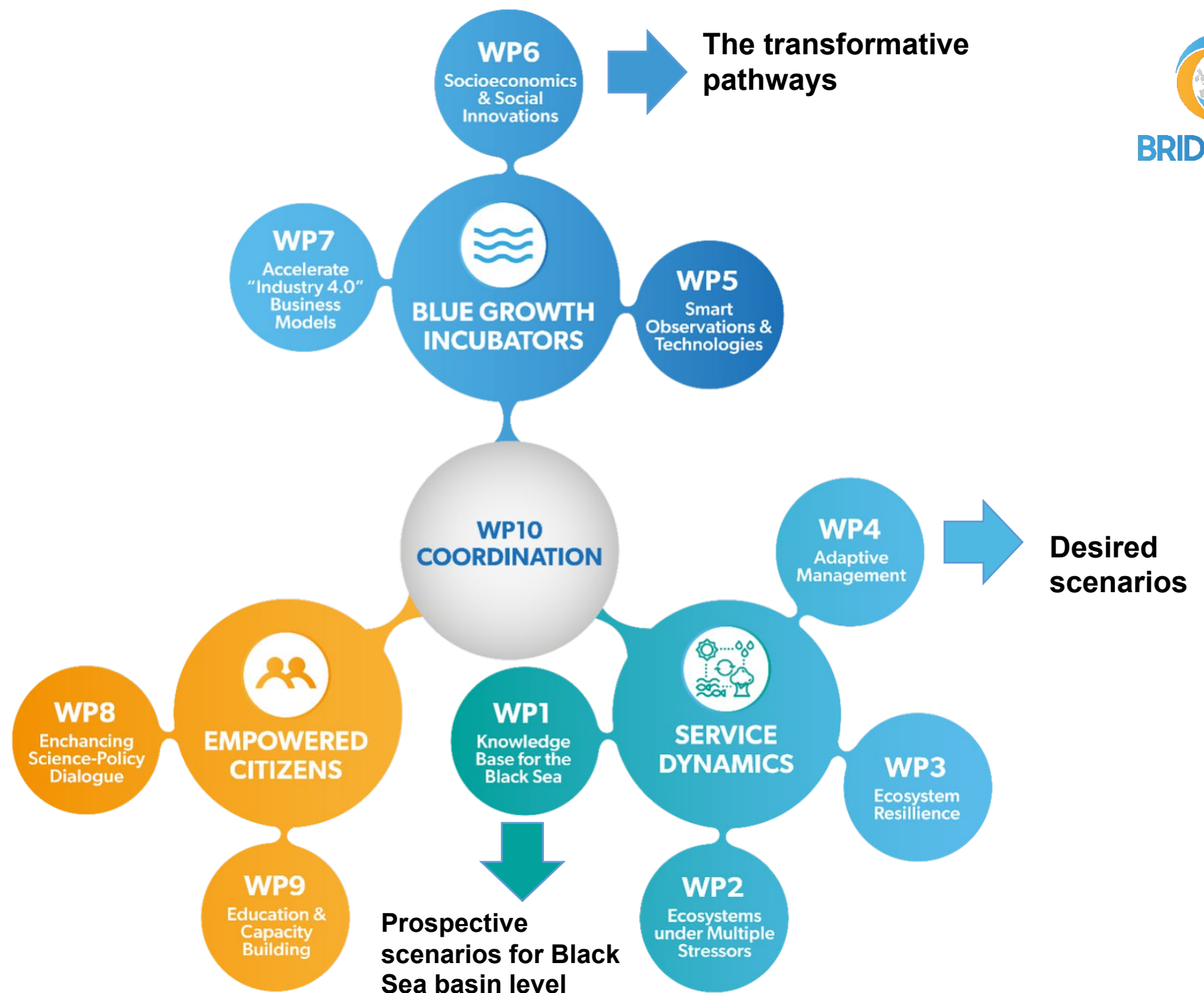
The overall objective of BRIDGE-BS is to advance the Black Sea's marine research and innovation to co-develop Blue Growth pathways under multi-stressors for the sustainable utilization of the ecosystem services. To do so it will develop an ecosystem-based management framework to enable policy uptake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



# BRIDGE-BS WORK PACKAGES embedded in Nodes



# BRIDGE-BS WORK PACKAGES embedded in Nodes





# PILOT SITES AND ECOSYSTEM SERVICES THAT THEY PROVIDE

## NORTHWESTERN BLACK SEA (ODESSA BAY)

Habitat Maintenance (RMS)  
Food Provision (PS)

## WESTERN BLACK SEA (DANUBE DELTA REGION)

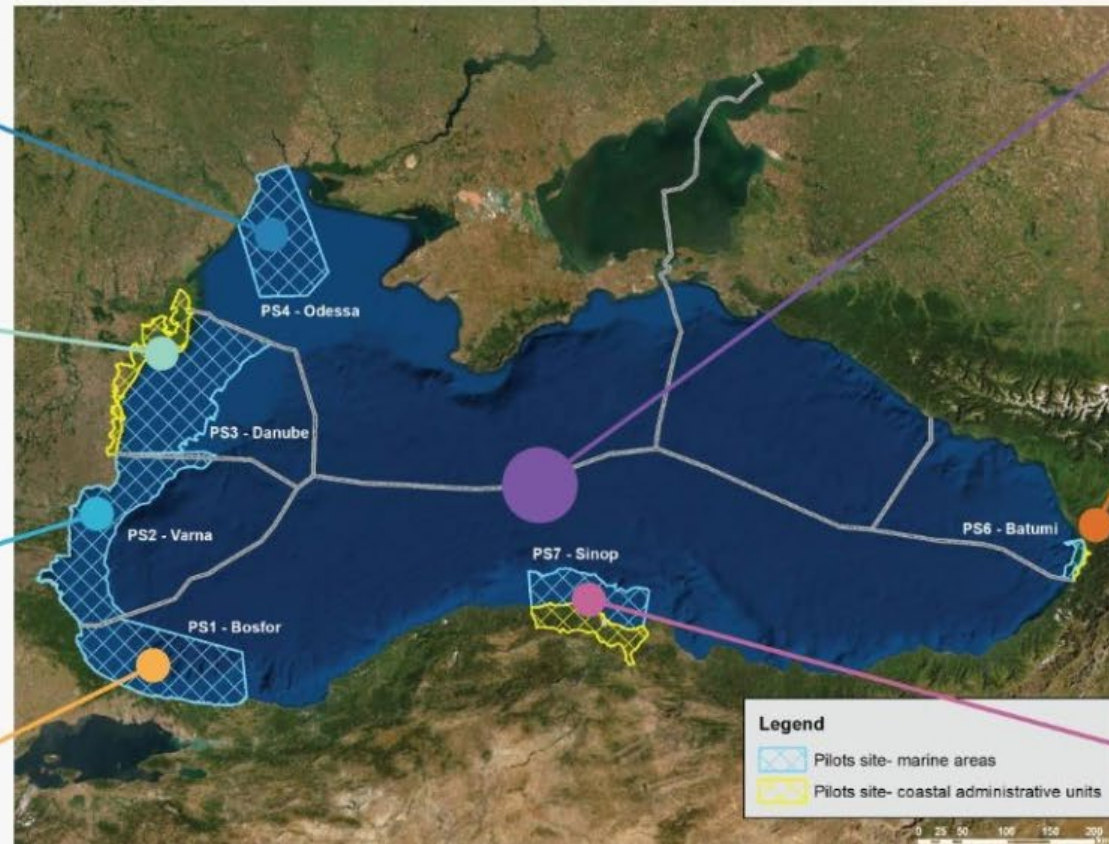
Carbon Sequestration (RMS)  
Water Quality (CS)

## WESTERN SHELF (VARNA & BURGAS)

Habitat Maintenance (RMS)  
Food Provision (PS)

## BOSPORUS SITE

Fish Migration Route (PS)  
Buffering Against Anoxia (RMS)



## BASIN-WIDE

Climate Regulations (RMS)  
Food Provisioning (PS)

## EASTERN BLACK SEA (BATUMI SITE)

Recreation and Tourism (CS)  
Food Provision (PS)

## SOUTHERN BLACK SEA (SINOP SITE)

Recreation and Tourism (CS)  
Food Provision (PS)

# ECOSYSTEM DYNAMICS UNDER MULTISTRESSORS (WP2 )

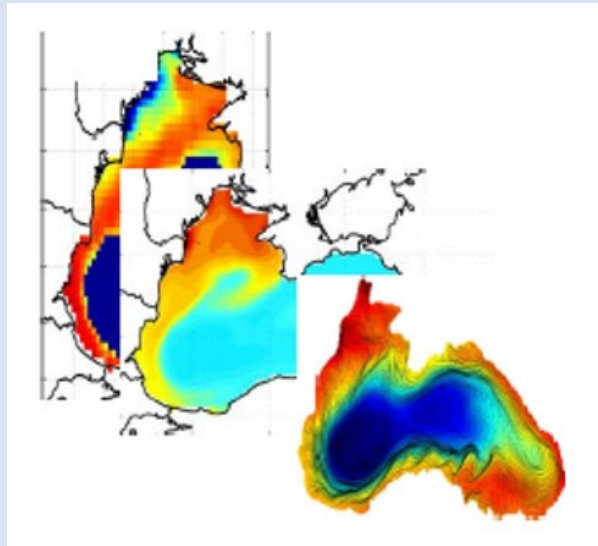


WP2 assesses and predict **the Black Sea state** (physical, biogeochemical and ecosystem components up to and including fish), **ecosystem service dynamics** and crucial **GES indicators** under the impact of climate and non-climate stressors at a Basin-Wide and Pilot-Site scales



For the first time in the Black Sea

## SIMULATION RESULTS OF THE BS ECOSYSTEM STATE UNDER MULTISTRESSORS



## GES INDICATORS FOR POLICY SUPPORT

Biological diversity



1.

Non-indigenous species



2.

Population of commercial fish/shellfish



3.

Elements of marine food webs



4.

Eutrophication



5.

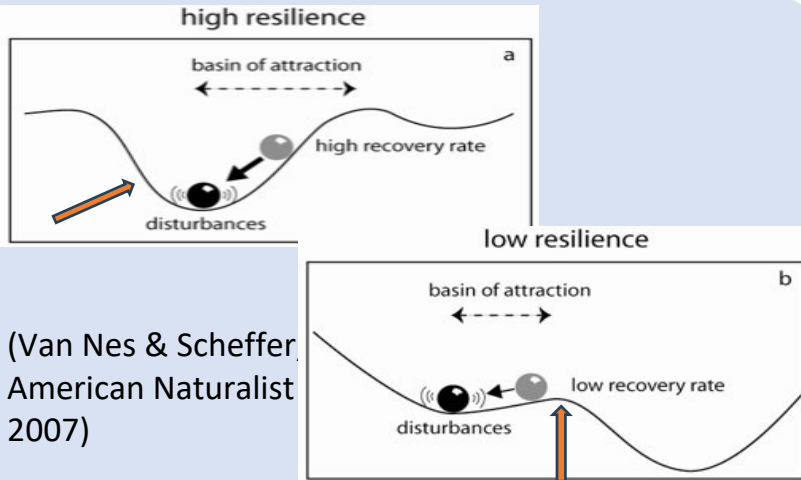
Marine litter



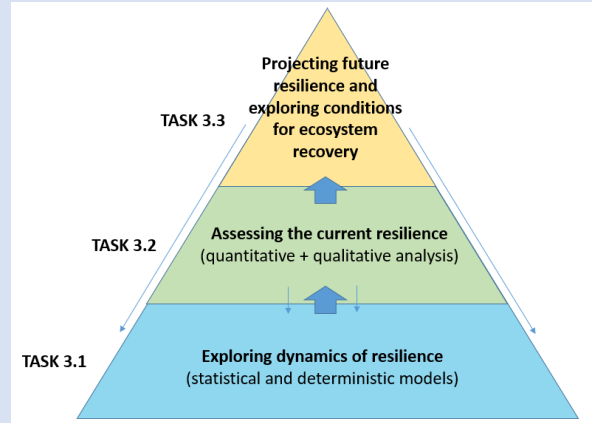
10.



# RESILIENCE FOR A HEALTHY BLACK SEA ECOSYSTEM (WP3)



**IDENTIFYING KEY SE FACTORS CONTRIBUTING TOWARDS RESILIENCE IN THE BLACK SEA**



**ECOSYSTEM SERVICE DISTRIBUTION AND CO-OCCURRENCE**



**For the first time in the Black Sea**



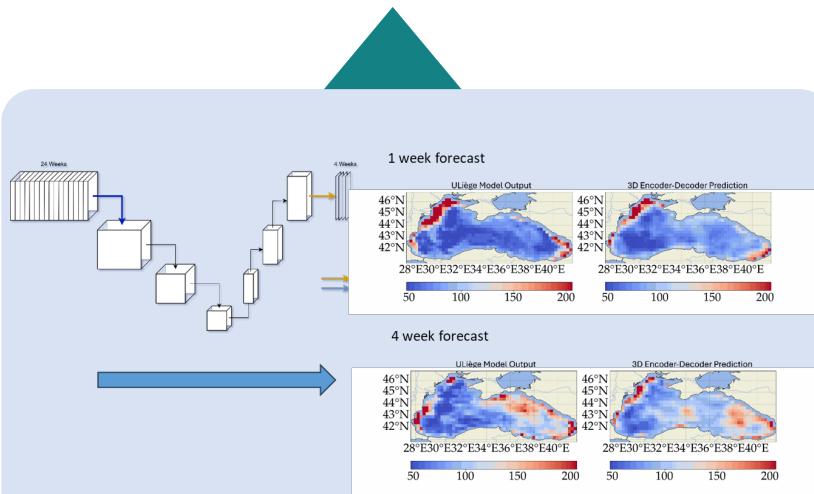
WP3 assesses the **resilience of the Black Sea ecosystems**, and identify the key functions that provide for sustainable ecosystem service (ES) production under different socio-ecological (SES) conditions To identify safe operating conditions for the services generated by Black Sea ecosystems .



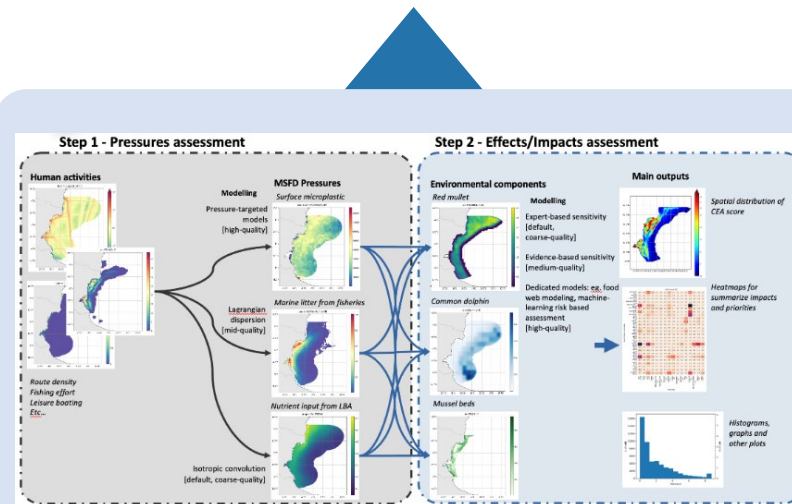
# ADAPTIVE MANAGEMENT (WP4)



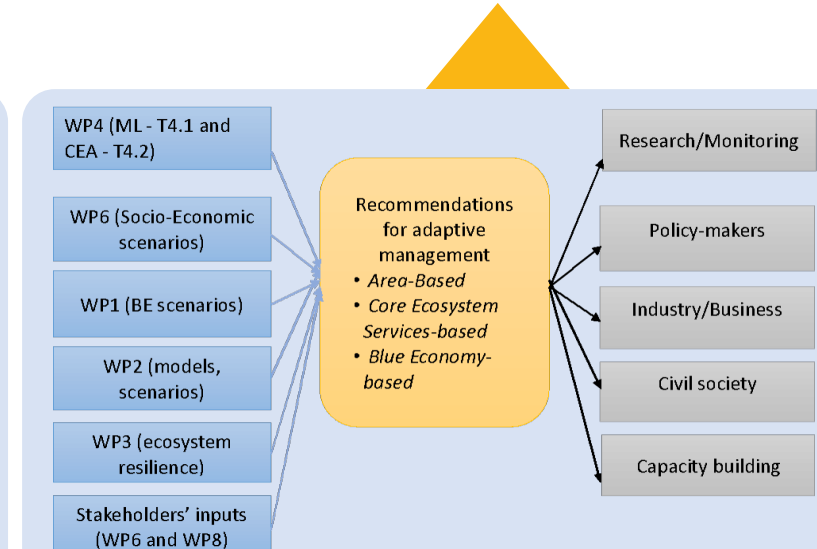
WP4 develops multi-stressor multi-service adaptive management strategies at basin and selected Pilot scales to boost sustainable Blue Growth (BG), limit human impacts on Black Sea state, preserving its core ecosystem services (ES) by maintaining a safe operating space.



**INTEGRATED RISK-BASED ML  
ASSESSMENT FRAMEWORK**

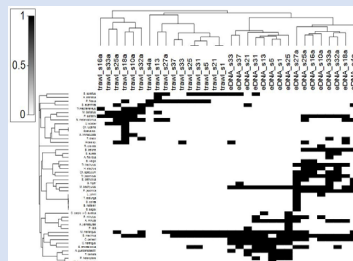


**CUMULATIVE EFFECTS  
ASSESSMENT (CEA) TOOL**



**RECOMMENDATIONS FOR  
ADAPTIVE MANAGEMENT,  
PLANNING AND POLICY  
IMPLEMENTATION**

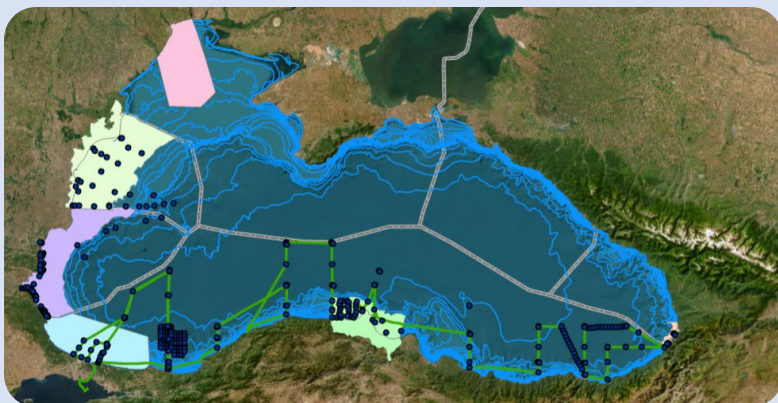
# SMART OBSERVATIONS AND TECHNOLOGIES FOR TACKLING MULTISTRESSORS, BOOSTING INNOVATION AND SUPPORTING MONITORING (WP5)



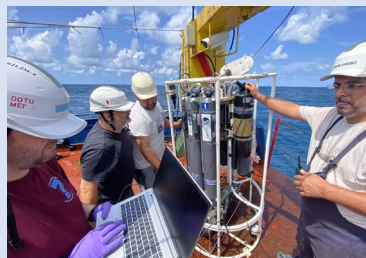
Next Gen.  
Biodiversity  
Detection with  
E-DNA



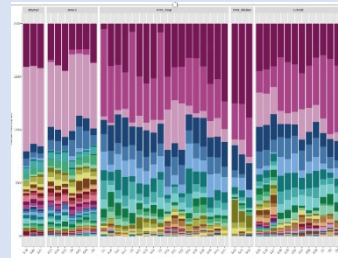
Rapid  
phytoplankton  
monitoring tool



BASIN WIDE CRUISES

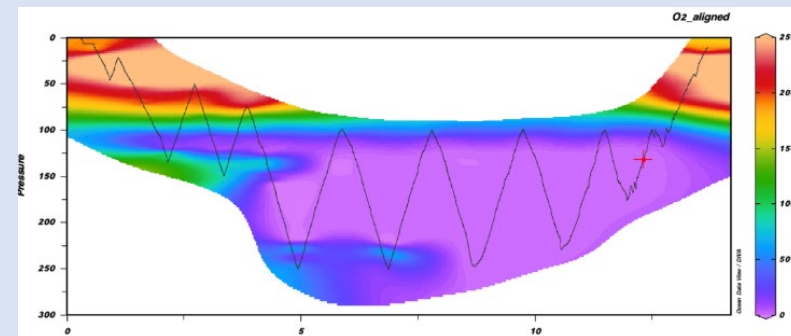


Novel sensor  
systems for  
multistressors



Microbial biotech  
demonstrator

SMART OBSERVATION  
TOOLS



MOST RECENT STATE OF  
MULTISTRESSORS &  
NEW PROCESS & KNOWLEDGE  
INCL. REDOX AND NUTRIENTS





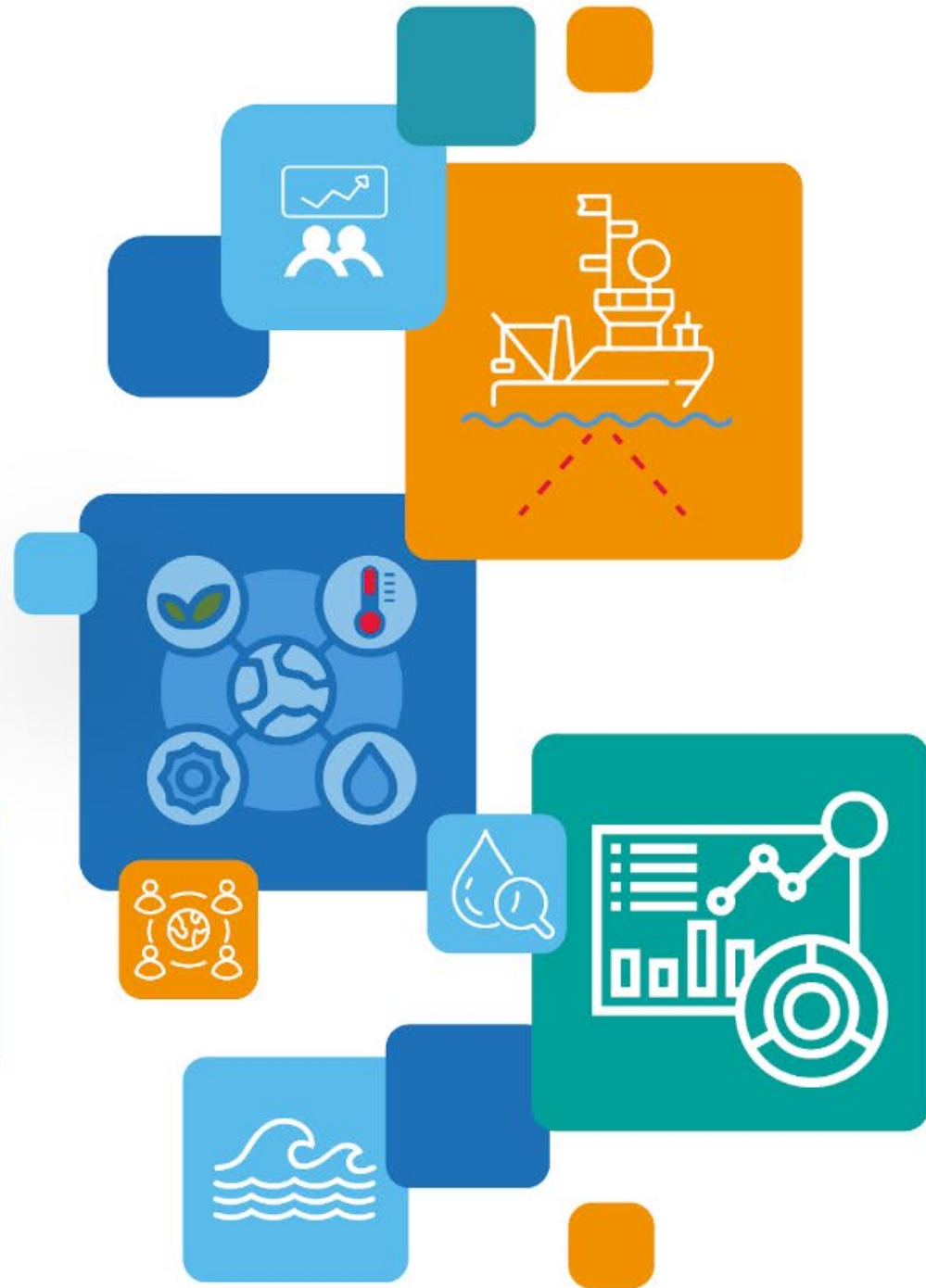
**WEBINAR SERIES**

# **BLACK SEA TOWARDS 2050**

**WEBINAR 2:**

**TECHNOLOGIES FOR SMART  
MONITORING OF MULTI-STRESSORS:  
READINESS AND UPSCALING**

**3 JULY**  
**11:00 - 13:00**  
**CEST**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000240



**MANUAL** **Log In**

Parameters / Stressors\* 15 selected ▾

Additional parameters Phytoplankton, C... ▾

Pilot sites\* All selected (7) ▾

Organisations\* All selected (22) ▾

Data Origin\* BRIDGE project ▾

Access Type\* All selected (2) ▾

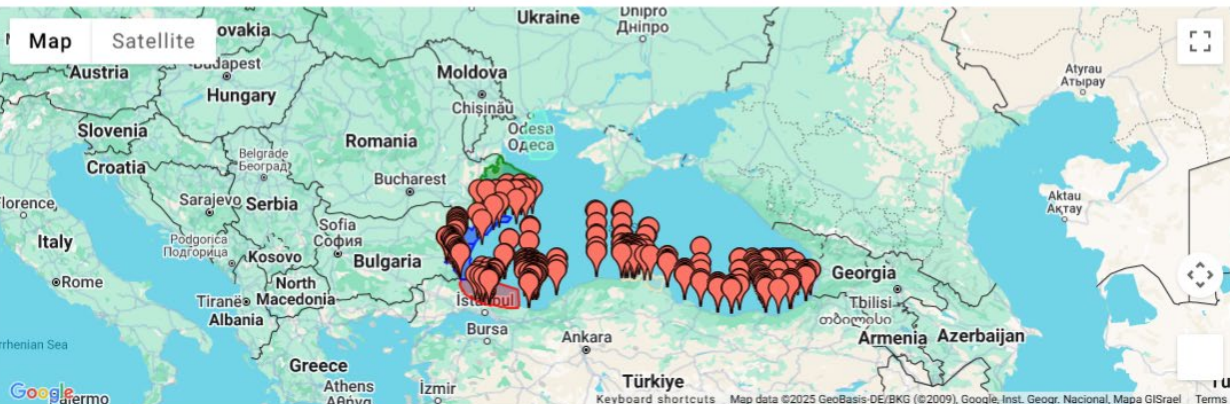
Instrument type All selected (8) ▾

Date Start 01-01-1999

Date End 15-04-2025

*The parameters marked with \* must be selected*

**Map** **Satellite**

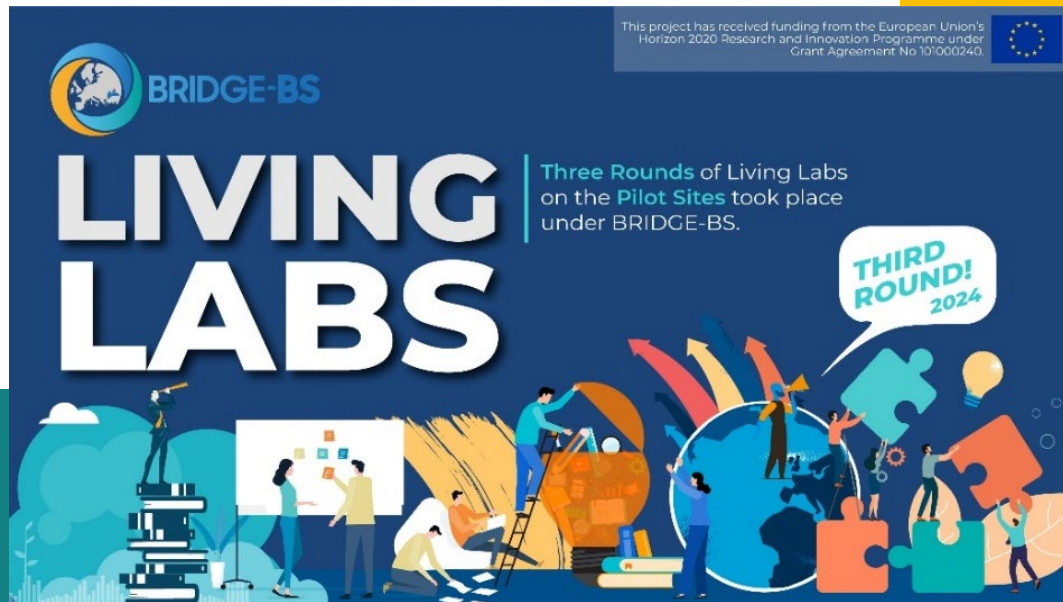


Map data ©2025 GeoBasis-DE/BKG (©2009), Google, Inst. Geogr. Nacional, Mapa GISrael

**SCAN THE QR CODE  
FOR THE BRIDGE-BS  
DATABASE**



<https://bridgeblacksea.org/index.php/bridge-bs-database/>



**3** rounds of Living Labs in **5** Pilot sites, engaging over **325** stakeholders





2nd Edition of HTS4BS



Black Sea Accelerator Trainings

High Tech Summit for the  
Black Sea (HTS4BS)

Black Sea Accelerator  
Programme

- ✓ Supported **19 Business** operating in **12 countries** (received over **50 applications** for both calls)
- ✓ Over **300 attendees** from academia, industry, policy and investors to HTS4BS
- ✓ Investor Engagement
- ✓ Joint cooperation between H2020 funded **DOORS** project





## SCIENCE-POLICY DIALOGUE FORUM

FOR A SUSTAINABLE BLUE ECONOMY IN THE BLACK SEA

29 MARCH 2023 THESSALONIKI, GREECE

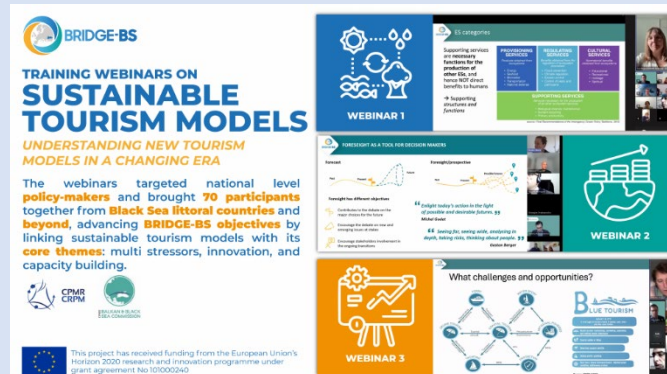


Winter School, Athens, 2025

>400 Stakeholders  
engaged



CONTINUOUS SCIENCE-  
POLICY DIALOGUE



Webinars, Online, 2024

UPSKILLING POLICYMAKERS FOR  
SCIENCE-BASED POLICYMAKING



Knowledge Transfer Activity, Online, 2024

SUPPORT SCIENCE – POLICY  
KNOWLEDGE TRANSFER

# ENHANCING SCIENCE – POLICY DIALOGUE (WP8)

## UPCOMING ACTIVITIES

**INTERGROUP MEETING  
AND CONSULTATIONS**

*JUNE*

**BRIDGE-BS FINAL  
CONFERENCE IN  
BRUSSELS**

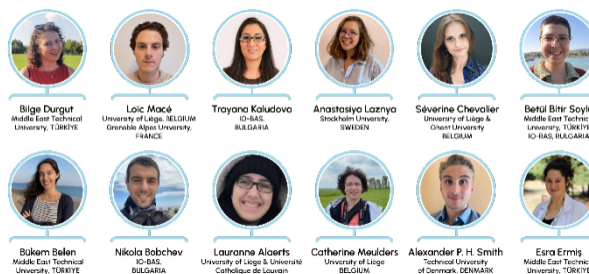
*OCTOBER*

**BRIDGE-BS  
POLICY BRIEF**

*OCTOBER*



Virtual Blue Career Center



PhD Programme on Blue Growth



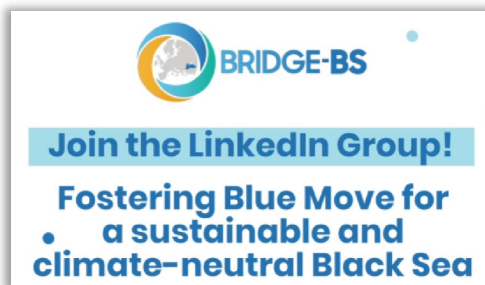
Young Ambassadors



Summer Schools



Black Sea Ocean Literacy Network



Blue Move



Science-Policy-Technology Mooc



Hands-on Marine Science Activities



Citizen Science Campaigns



# BRIDGE-BS Black Sea Towards 2050 Webinar Series



BRIDGE-BS

The Black Sea Towards 2050 series aims to continue the momentum created by BRIDGE-BS, engaging diverse communities and young scientists to co-design a sustainable future for the region.

- 16.04.2025: The Future of the Blue Economy
- 03.07.2025: **Technologies for Smart Monitoring of Multi-stressors: Readiness and upscaling**
- September: BRIDGE-BS Black Sea Demonstrator

Black Sea and International **scientists, policymakers, industry stakeholders, and the broader public** to discuss how BRIDGE-BS research contributes to a better understanding of the Black Sea's challenges and opportunities.



BRIDGE-BS

WEBINAR SERIES

## BLACK SEA TOWARDS 2050

WEBINAR 2:

**TECHNOLOGIES FOR SMART  
MONITORING OF MULTI-STRESSORS:  
READINESS AND UPSCALING**

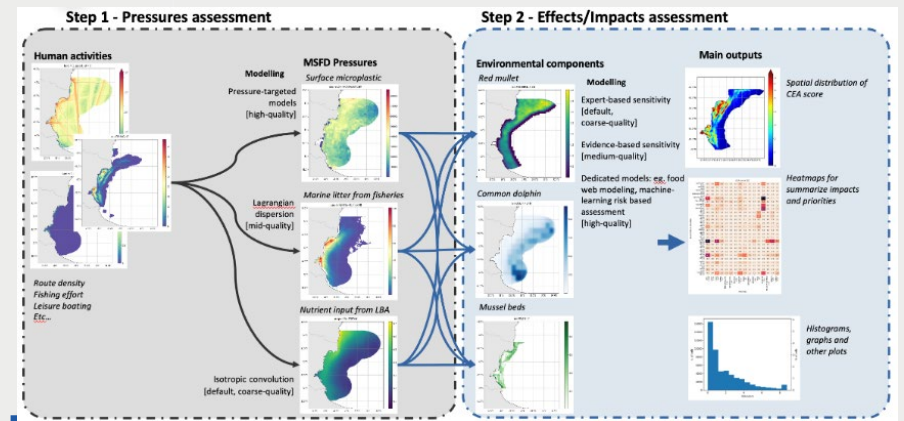
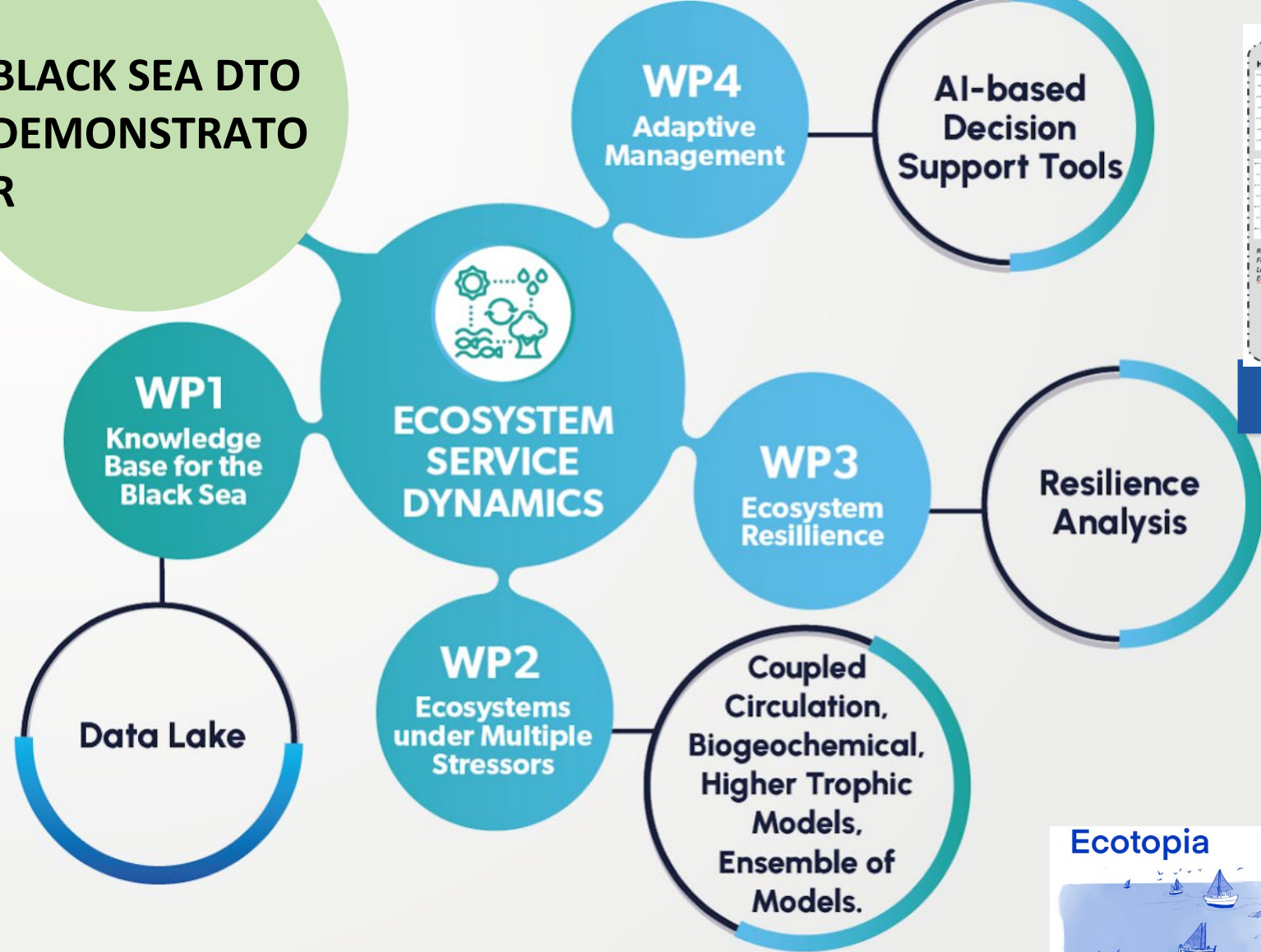


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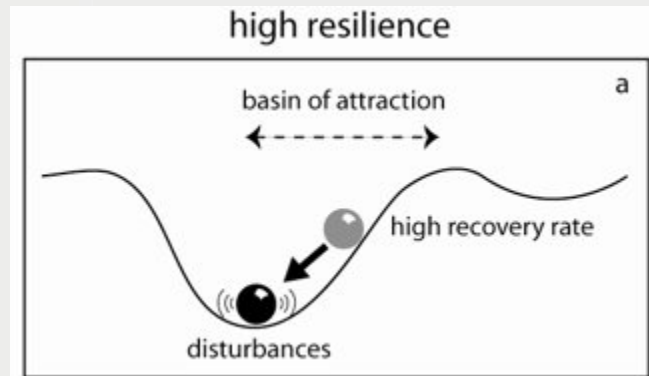
**3 JULY**  
11:00 - 13:00  
CEST



# BLACK SEA DTO DEMONSTRATO R



**Risk Based-cumulative Effect Assessment Tool (WP4)**

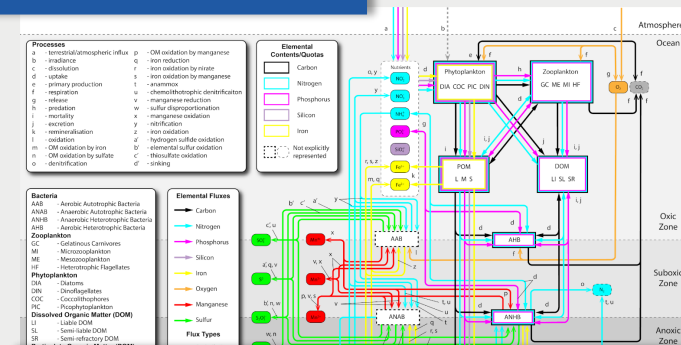


**Resilience Analysis (WP3)**

## Ecotopia



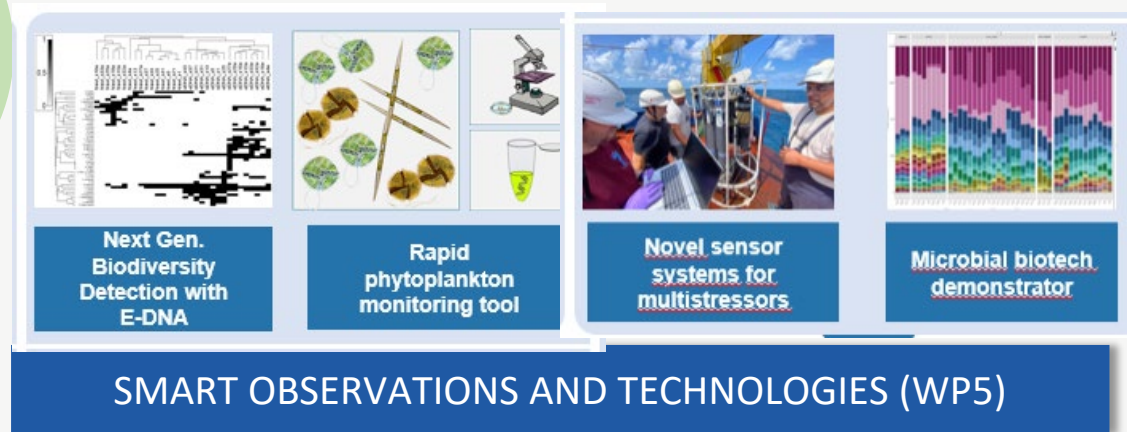
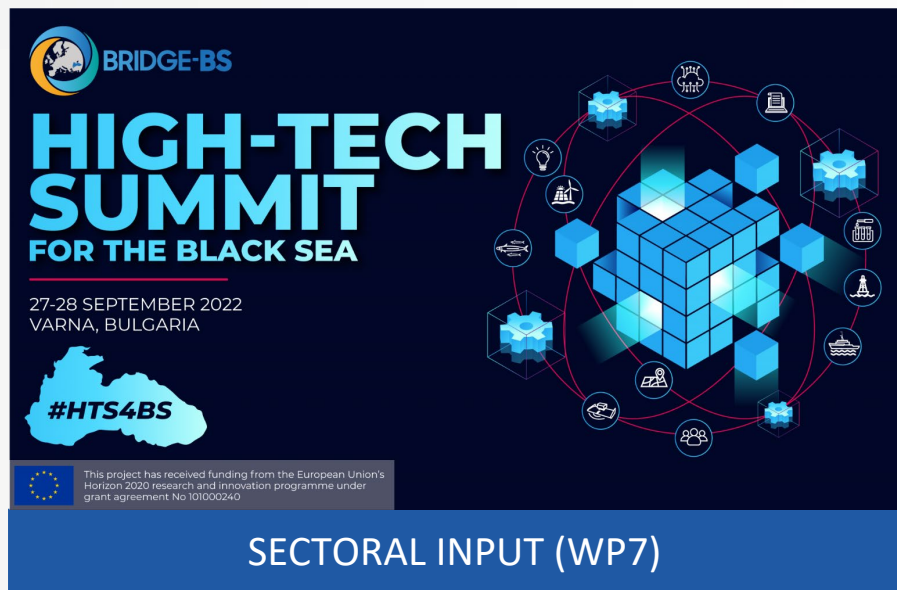
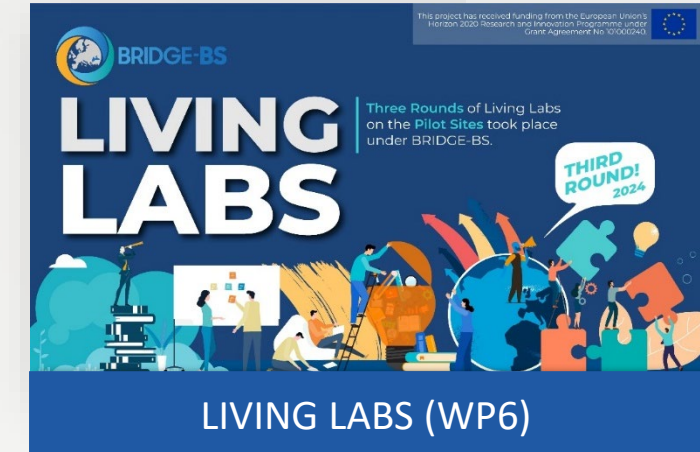
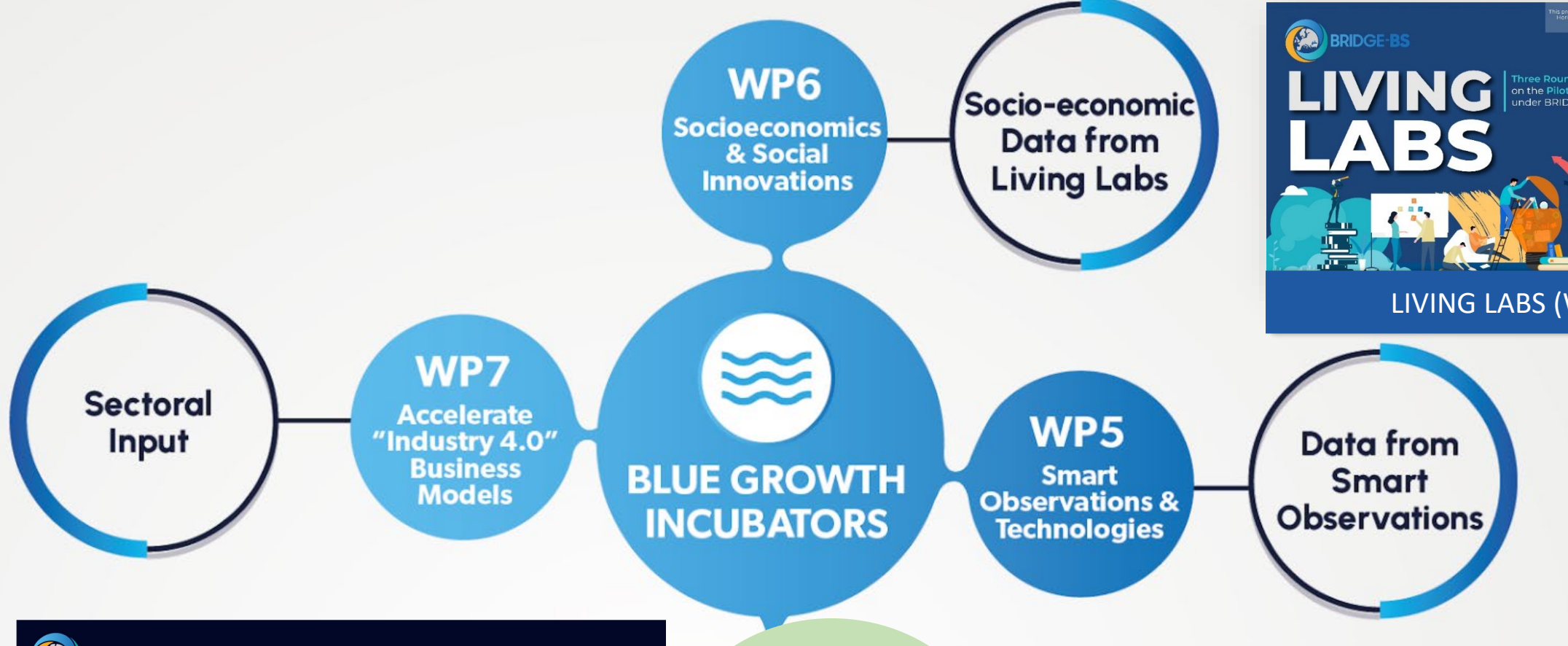
**Scenarios & Database (WP1)**



**Ecosystem Models (WP2)**

BRIDGE-BS fosters Black Sea DTO across multiple dimensions, contributing it through the all work packages.









# THANK YOU!

**STAY TUNED!**



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