

Developing Optimal and Open Research Support for the Black Sea



DOORS project outcomes in support to the Black Sea Common Maritime Agenda

On-line meeting, 29 April 2025

DOORS scientists

DOORS - Developing Optimal and Open Research Support for the Black Sea
Project funded by the European Union N° 101000518



Welcome, meeting objective, who-is-who, agenda

Moderator, **Jos Brils**, Deltares, The Netherlands



Meeting Objectives:

- Highlight to you our DOORS outcomes in support to the Black Sea Common Maritime Agenda
- Collate feedback on questions related to these outcomes and their possible use by you

Made available to you before the meeting:

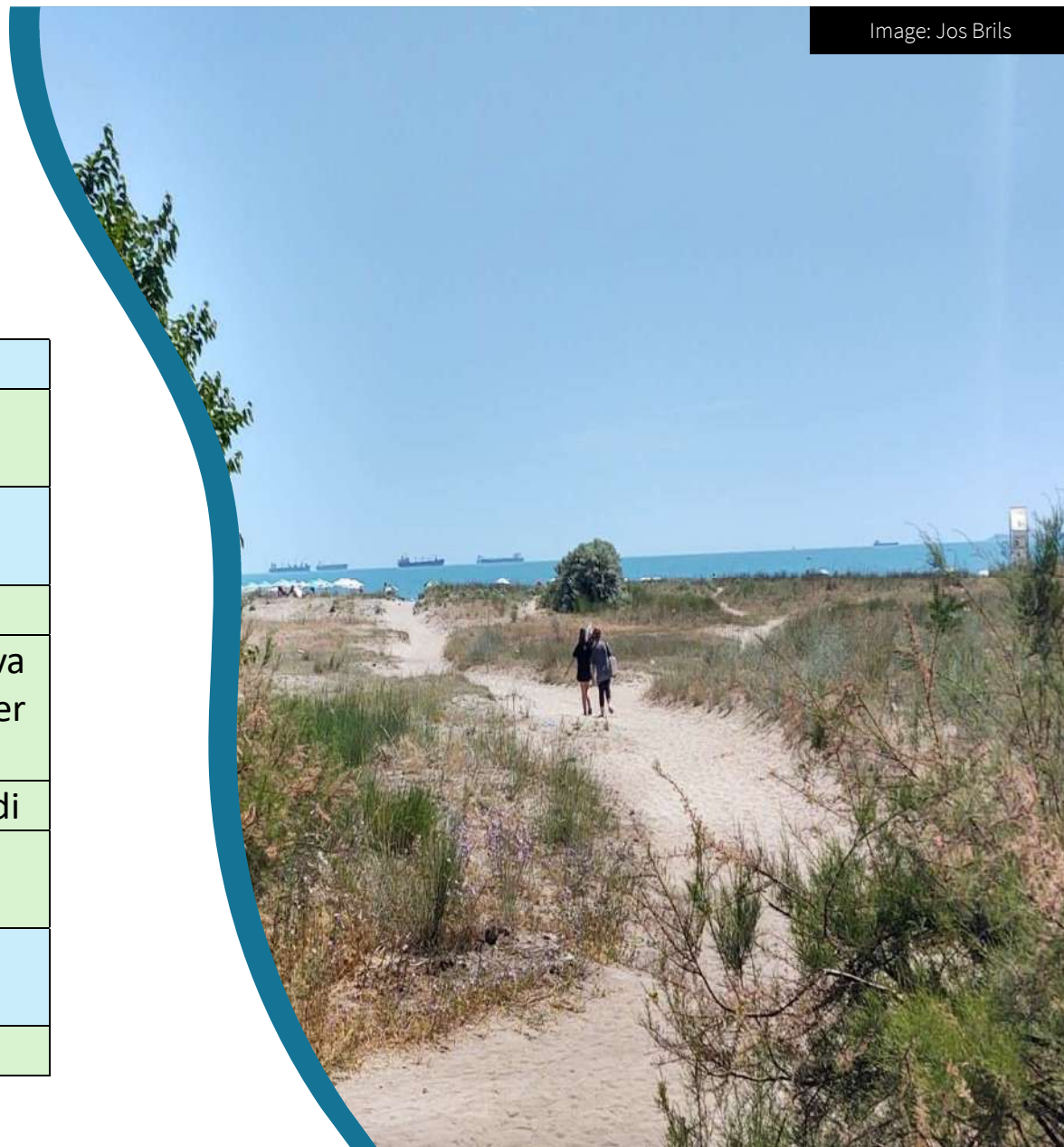
- Preliminary agenda
- Briefing note (summary of DOORS outcomes)
- 3 factsheets (more detailed DOORS outcomes):
 - System of Systems (SoS)
 - Blue Growth Accelerator (BGA)
 - Knowledge Transfer and Training (KTT)

Who-is-who in the meeting?



Agenda

Timing	Agenda item	Who
14.00	Welcome, objective & who-is-who	Jos Brils
14.15	Introduction to the DOORS project	Marian Paiu
14.25	Pitches: Q&A after each pitch	
	A. Use and increase of Black Sea environmental system understanding	Violeta Slabakova and Andrew Tyler
	B. Accelerating Blue Growth	Eleni Manousiadi
	C. Education and Training of Blue skills	Rory Scarrott
15.10	Discussion: collating feedback on some questions	Jos Brils
15.30	End of meeting	



Introduction to the DOORS project

Marian Paiu, Mare Nostrum NGO, Romania



Timelines

Burgas Vision Paper
states need for SRIA with
H2020 call for implementation
in January 2019

Step 1 of BG 11
with Step 2 – Sept 2020
Results of evaluation – Dec 2020
DOORS– WINS !

**May
2018**

**Jan
2020**

**Jun
2017**

**May
2019**

**Jun
2021**

DG RTD begins development
of the Strategic Research and Innovation
Agenda for the Black Sea (SRIA)

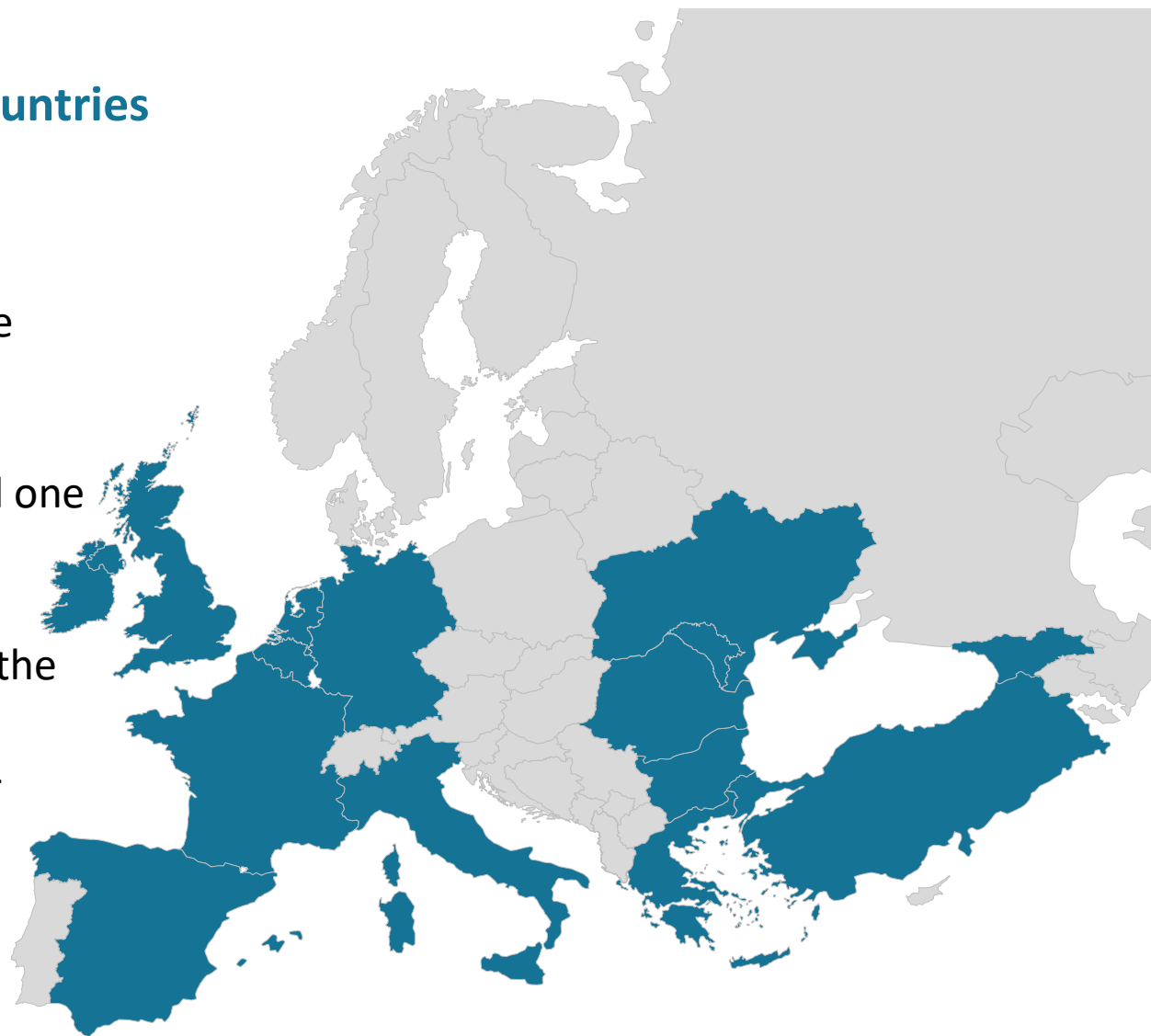
BD officially Launches SRIA
with DG RTD BG11 call for the
Implementation of the SRIA in Sept 2019

DOORS project starts
with project duration to
May 31st 2025



35 Partners from 15 Countries

- 35 partners from 15 countries – including the most relevant research institutions around the Black Sea – and with global relevance (NOC, IFREMER)
- The 4 relevant ERICs for marine sciences - and one ESFRI Research Infrastructure (to become operational during DOORS duration)
- All WPs bring together best expertise around the Black Sea and in Europe
- WP co-leadership – a step towards the proper integration of the scientific communities and know how, seed for future cooperations



DOORS Objectives

To make operational the Black Sea SRIA, support the successful Blue Growth implementation and contribute to a healthy, productive and resilient Black Sea.

3 Key Programmes:

1

System of Systems (SoS)

The platform giving access to *in situ*, Earth observation and modelled data on the Black Sea informing on physical, geological, chemical, and biological parameters of the Black Sea.

2

Blue Growth Accelerator (BGA)

To identify sectors for innovation, providing professional support to unlock their potential. Facilitating exchange between scientists, entrepreneurs and policy makers for development of Blue Growth sectors. Support matchmaking of funders and entrepreneurs

3

Knowledge Transfer & Training (KTT)

Support training, share best practice and knowledge. Aims to build capacity to make use of the knowledge obtained during the project, support Ocean Literacy and education at all levels.

A one-stop-shop for standardised data and model outputs for the Black Sea

Uses latest technology to bring complex data together

Brings together heterogeneous data streams into analysis (or even interpretation) - ready data cubes using the same (meta)data standard and format

Harmonises data

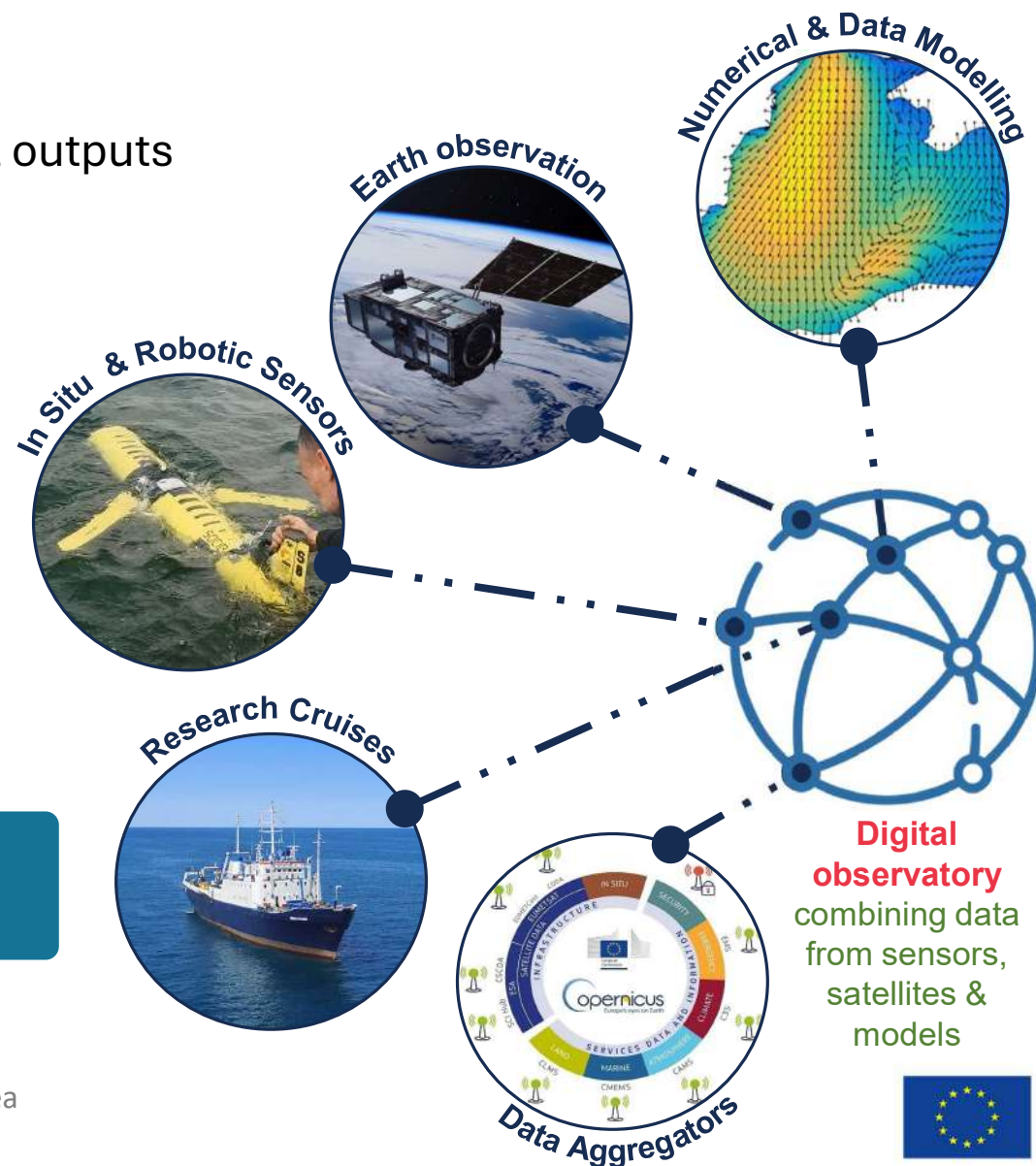
Deliver harmonised spatial and temporal data products (sampling, cruises, fixed & mobile oceanographic platforms, EO observations and models)

A single smart intuitive portal

Tailored to the needs of stakeholders, using FAIR principles

Support knowledge transfer

Building a common understanding, opportunities for growth and collaboration for sustainable growth and prosperity



Co-Development: Priority Areas

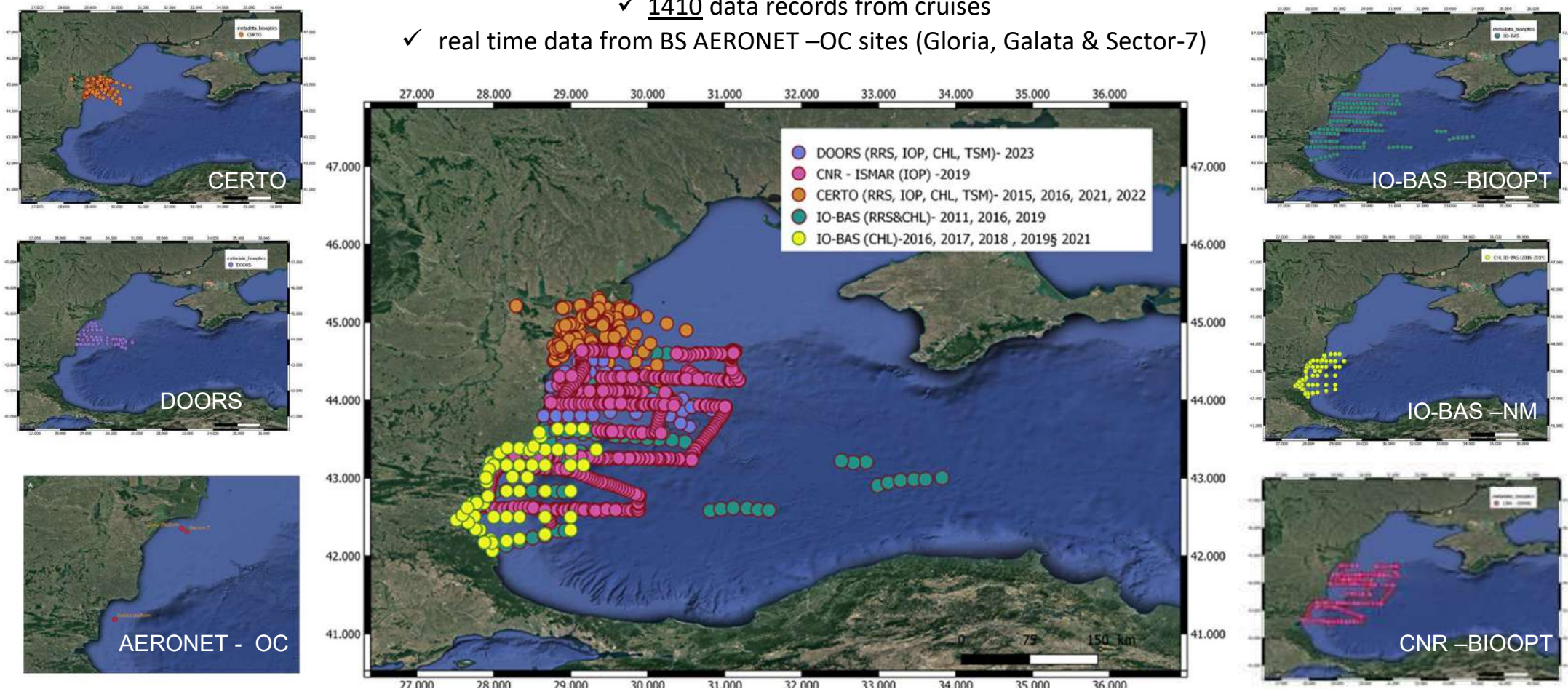
Country	Blue Economy Priorities								Environmental Challenges								
	Aquaculture	Capture Fisheries	Data for Evidence	Marine R&D	Oil & Gas	Renewable Energy	Shipping & Ports	Tourism incl. Coastal & Marine	Biodiversity	Climate change Extreme Events	Coastal Erosion	Environmental Shocks	Eutrophication	Marine litter	Over fishing	Pollution, incl. sources	Water level
	Ukraine			●								●	●	●		●	
	Romania	●	●	●		●		●		●	●		●	●		●	
	Moldova							●	●								●
	Bulgaria		●		●			●	●	●	●		●	●		●	
	Turkey	●	●		●	●	●	●	●	●	●		●	●	●	●	
	Georgia	●	●	●	●			●	●		●	●		●	●	●	
	Basin Wide			●	●			●		●	●	●	●	●		●	



In situ campaigns Satellite Data Calibration & Validation

✓ 1410 data records from cruises

✓ real time data from BS AERONET –OC sites (Gloria, Galata & Sector-7)



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Key activities/tasks:

- 1 Map Black Sea Ecosystem Services, Blue Growth Sectors & Entrepreneurs
- 2 Provide professional support to Black Sea actors to exploit Blue Growth opportunities
- 3 Foster collaboration between academia & industry for the sustainable development of the Black Sea Blue Economy
- 4 Facilitate access to investors- Black Sea Special Interest Group (SIG)

Achieved outcome

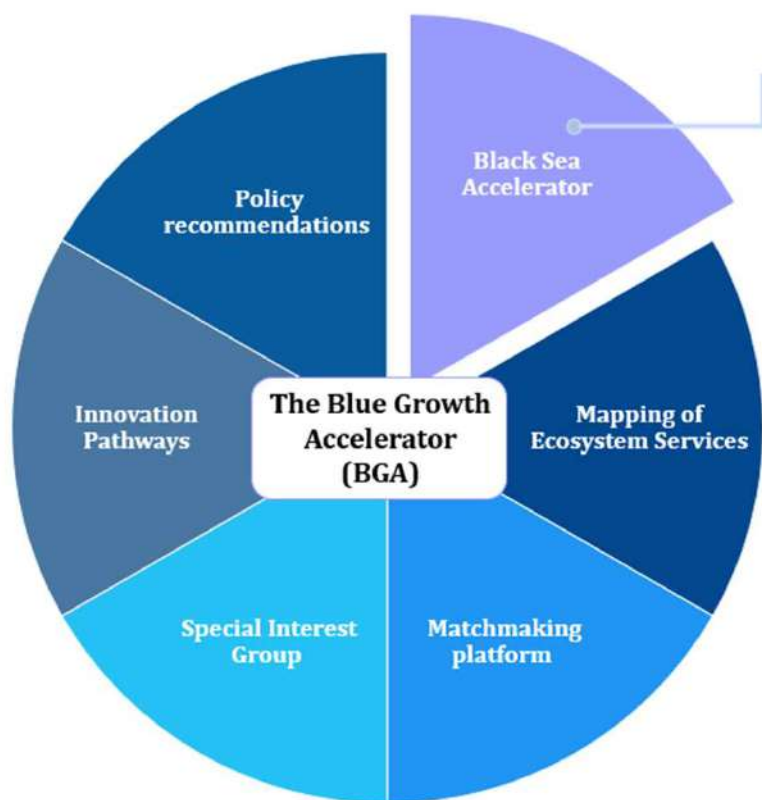
- Biotechnology and wind energy provide most potential
- 22 entrepreneurs selected and supported by Black Sea Accelerator
- Trainings delivered
- Entrepreneurs trained
- SIG initiated and continued (portfolio for investment finalised and presented)
- Financing sources identified

Impact aimed for

- Safe and sustainable growth of marine and maritime sectors
- Enhanced entrepreneurial culture
- Increased capacity for blue innovation

Blue Growth Accelerator (BGA)

Provide professional support to the Black Sea actors for exploitation of Blue Growth opportunities



The Black Sea Accelerator (BSA)

The Black Sea Accelerator (BSA) was developed in collaboration with the H2020 BRIDGE-BS project, in an effort to set up the first startup accelerator in the Black Sea region, ensuring a robust and coordinated approach to fostering blue innovation in the Black Sea.

Clarifying the Difference: BGA vs. BSA

- BGA includes the call for the first ever business accelerator for blue business in the Black Sea, the selection of startups, training programs, the formation of a Special Interest Group, the innovation pathways.
- BSA includes all joint activities related to the call launch, startup selection, and training initiatives

- Capacity building - assets and programmes
 - Tailored **MSc. And Life-Long Learning** Training Opportunities Courses
 - A co-designed and delivered **Training of Trainers** Programme
- Mutual Mobilisation & Learning – 2 rounds of **Mutual Mobilisation Learning Workshops** in each Black Sea country
- Research Exchange 4 Next Gen. – **Early-Stage Research Exchange** experiences



Early-Stage Researcher Exchange (ESRE)

- **Early-Stage Researcher Exchange** programme successfully developed
- **8 applicants, 6 selected** for ESRE & exchanges kicked-off, representing a diverse range of collaboration topics, and connections between the Black Sea countries and further afield



- Unsuccessful applicant
- Successful applicant
- Host location

- Overall:
- 8 applications
 - 6 selected
 - 6 nationalities (4 Black Sea)
 - 2 cruise placements

- Wide range of topics
- 1 social sciences
 - 1 fisheries
 - 2 biology
 - 1 ocean modelling
 - 1 earth observation & modelling

Pitch A: Use and increase of Black Sea environmental system understanding

Violeta Slabakova, IOBAS, Bulgaria
Andrew Tyler, University of Stirling, United Kingdom





Harmonised observation

DOORS outcome:

- Data gaps identified for high interest sectors: fisheries, aquaculture, wind energy
- Manual produced to guide minimisation of these gaps through harmonisation of research efforts and knowledge sharing between the Black Sea countries

How to best utilise and apply this outcome:

- Establish and enhance pressures' monitoring activities related to these sectors
- Include observation/monitoring, measures and evaluation in a strategic operational plan
- Eliminate misalignment across countries by establishing common monitoring programs through regional agreements

How this supports the CMA:

- Availability of harmonised and quality controlled marine data will enhance the understanding of marine ecosystems and how these are affected through Blue Economy activities
- This is essential for assessing the sustainability of these activities

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Deeper Knowledge on Unique Black Sea Habitats



- Contribution to BGE via new technologies development: glider, Lab-on-chip sensors, deep-se
- Assessment across the entire Black sea of microplastics and marine litter
- Methane in the Black Sea: production, storage (gas hydrates), emissions, dynamics and role in massive landslides
- Assessment of time evolution of the three water masses for the last 50 years
- New discover of underwater cultural heritage

How to best utilise and apply this outcome:

- Integrate the new technologies in day-to-day monitoring and research activities
- Developing new and more efficient strategies to remove the marine litter & mitigate the impact in natural systems
- Endorse a sustainable use of energetic resources & better evaluate the environmental needs and challenges as well as tailor solutions for specific needs
- Marine and archaeology tourism highlights the value of underwater heritage while promoting its preservation

How this supports the CMA:

- Boosting the blue economy through innovation and technologies
- Protecting the marine environment and ecosystem health
- Preserving and promoting maritime heritage and scientific understanding



Modelling tools to increase understanding

DOORS outcome:

- Suite of models and integrated model chains, from land input to the open sea:
 - **Biogeochemical** to quantify nutrient distribution at the Black Sea scale
 - **Marine litter** to evaluate its distribution, origin and area of accumulation
 - **Basin and coastal scale waves** to investigate wave climate and effects of extreme events
 - **Morpho-dynamic and flooding** to quantify storm effects and barrier beach modifications
- Modelling output:
 - Characterising present state of the Black Sea: circulation, wave, sediment, litter, biogeochem.
 - Climate change (2080-2100) estimates of Black Sea river loads: discharge, sediment, nutrients
 - Discharge, sediment and nutrient loads (2010-2020) for 11 major rivers entering the Black Sea

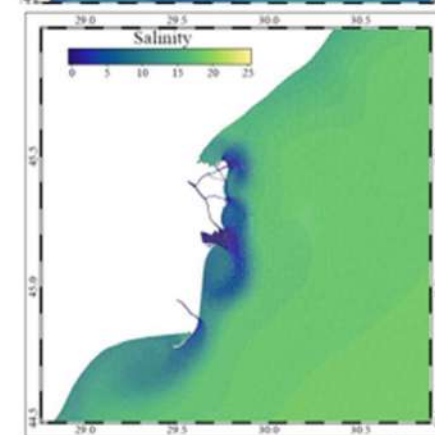
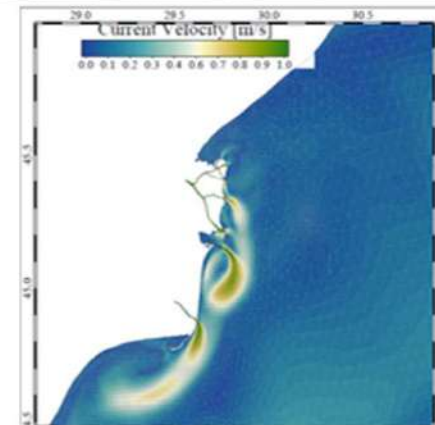
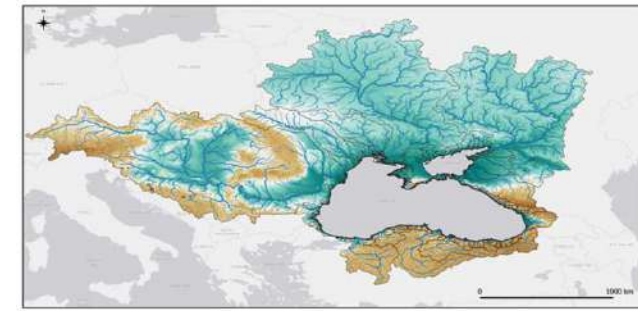
How to best utilise and apply this outcome:

- Use models and output to inform policy development and adaptation measures
- Build early warning system based on DOORS prototypes of operative model chains

How this supports the CMA:

- Modelling and output informs better management of the Black Sea system

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DOORS outcome:

- New algorithms to improve Water Quality Products for the Black Sea, Chlorophyll-*a* and Total Suspended Sediment
- New products on coastal dynamics (sediment erosion and deposition)
- New approach for the detection of marine litter

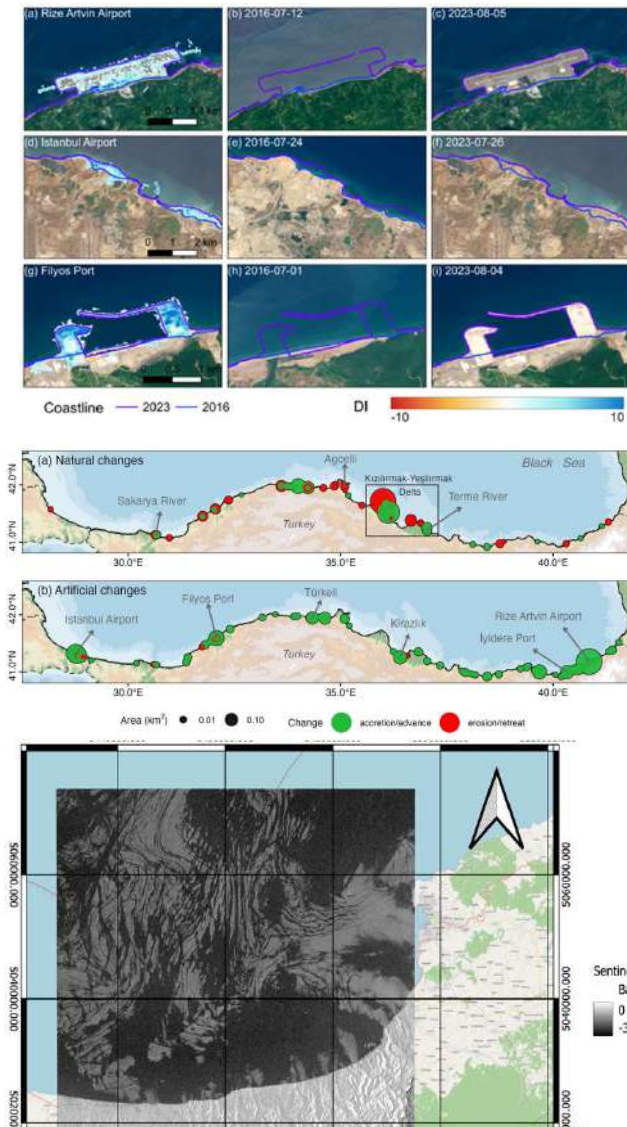
How to best utilise and apply this outcome:

- Supporting Blue Economy Sectors, including Aquaculture, Tourism and Ports and Martine Infrastructure
- Monitoring the current and changing state of the Black Sea environment
- Reporting for EU Directives (MSFD and WFD)

How this supports the CMA:

- Support for the Blue Economy:
 - Aquaculture (Water Quality, Temperature and coastal erosion)
 - Tourism (Water Quality, Temperature, coastal erosion and Marine Litter)
 - Ports and Marine Infrastructure (sediment dynamics)

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System of Systems: Digital Observatory for the Black Sea

DOORS outcome:

- Co-design of the first of kind digital observatory of the Black Sea:
- Integrates data from multiple sources (sensors, satellites and models) into a single one-stop-shop to provide a comprehensive environmental systems understanding for the Black Sea
- Co-developed a series of use-cases with stakeholders to demonstrate the art-of-the-possible

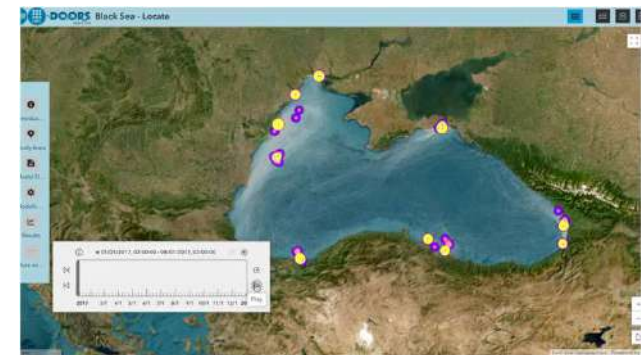
How to best utilise and apply this outcome:

- Supporting Blue Economy Sectors, including aquaculture, tourism, ports and marine infrastructure, energy, resource recovery
- Supporting decision making and policy through the provision of real time information on the current, changing and future state of the Black Sea, for example: managing pollution (marine litter, eutrophication and oil spill); resilient communities (floods, storms and droughts); and safety and security (consequences of conflict)
- Supporting knowledge transfer and education on the Black Sea

How this supports the CMA:

- Single source of truth as well as support for the Blue Economy:
 - Aquaculture (water quality, temperature and coastal erosion)
 - Tourism (water quality, temperature, coastal erosion and Marine Litter)
 - Ports and marine infrastructure (sediment dynamics) & marine navigation (sea state)
 - Energy and resource recovery (wave, wind, marine resources)

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Pitch B: Accelerating Blue Growth

Eleni Manousiadi, KANTOR, Greece



Sectors with sustainable Blue Growth potential

DOORS outcome:

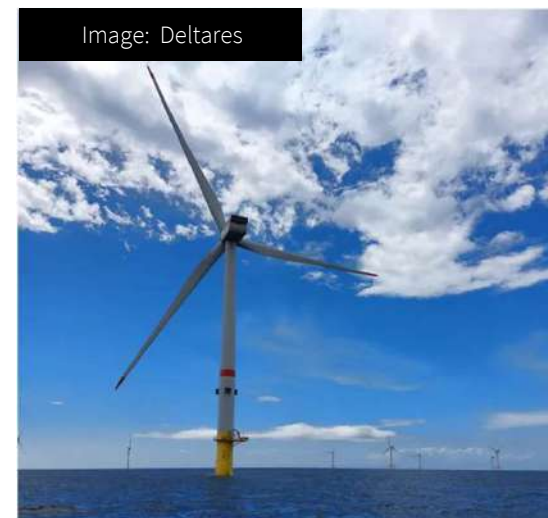
- Assessed how the Black Sea region can grow its Blue Economy by making better and environmentally sustainable use of marine and coastal ecosystem services
- **Biotechnology** and **wind energy** emerged with potential for sustainable growth
- Risk analysis of wind farming identified possible impacts (positive and negative)

How to best utilise and apply this outcome:

- We recommend several actions to further develop offshore wind energy potential:
 - Provide an improved Geographical Information System (GIS) platform (build on SoS?)
 - Start ecological monitoring as soon as possible
 - Assess the perceived benefits and negative impacts of offshore wind farming
 - Invest in training of specialised people and in infrastructure like ports
 - Collaborate with other countries that have longer experience with offshore wind energy

How this supports the CMA:

- Outcome of above actions supports the further design of the implementation plan on how to exploit the wind energy potential in an environmentally sustainable way





Black Sea Accelerator (BSA)

DOORS outcome:

- Trained entrepreneurs in several Blue Economy sectors
- BSA training sessions and training materials
- Blue Economy Brochure
- Matchmaking platform which connects BSA participants directly with investors and new partners

How to best utilise and apply this outcome:

- Make training resources widely accessible for startups
- Integrate them into national entrepreneurship programs
- Promote the use of the matchmaking platform

How this supports the CMA:

- Training and use of platform fosters innovation, supports entrepreneurship and builds capacity
- And thus, promotes sustainable business development in the Blue Economy in the Black Sea region

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- ✓ 22 start-ups granted access
- 🌐 All Black Sea Countries were represented
- 📁 Focus sectors included:
 - ✓ Aquaculture
 - ✓ Blue biotechnology
 - ✓ Renewable energy
 - ✓ Ports & Transport
- 📈 60%+ at TRL 7-9



Download our Blue Economy Brochure



Join the Platform



DOORS outcome:

- **Multi-Actor Forums (MAFs)** held in all Black Sea countries, which facilitated structured, inclusive stakeholder engagement
- Prioritised **Blue Economy sectors** and co-identified, key environmental, socioeconomic, and policy **challenges** in the Black Sea (on a national and regional level) through the MAF rounds and supporting surveys
- **Preliminary Innovation Pathways**, aligned with stakeholder priorities, enabling the utilisation of solutions coming from the BGA for regional sustainability

How to best utilise and apply this outcome:

- Leverage the Pathways as **strategic roadmaps** for R&I, and policy alignment within national and regional programs
- Incorporate stakeholder **needs into national policy and research funding agendas** to ensure impact relevance
- Use the MAF model as a **replicable engagement methodology** for future regional projects and Living Labs, enabling long-term stakeholder collaboration

How this support the CMA:

- **Fosters cooperation among Black Sea nations** on maritime and blue economy challenges
- Supports CMA's emphasis on **stakeholder participation and co-creation**, strengthening ownership of innovation and policy agendas
- Provides a mechanism for **stakeholder-driven prioritisation** for targeted implementation of CMA objectives
- Feeds into CMA **monitoring and policy evaluation** with stakeholder-verified data





Facilitated access to funding through Special Interest Group (SIG)

DOORS outcome:

- Black Sea SIG has captured interest numerous investment entities including Venture Capitalists, businesses, and philanthropists.
- Focusing on Digital and AI technologies, aligned with the DOORS SoS, investment prospects include opportunities in Heritage and Tourism, Energy, Aquaculture and Shipping
- All merged in a **portfolio of investment opportunities**, launched on 15 April 2025.

How to best utilise and apply this outcome:

- Champion the blue economy, endorse the investment opportunities, and support a nurturing environment

How this supports the CMA:

- Portfolio raises the profile of the distinct investment opportunities within the Blue Economy
- A thriving blue economy contributes to sustaining regional recovery and prosperity across the Black Sea



Pitch C: Education and Training of Blue skills

Rory Scarrott, University College Cork, Ireland





Training courses

DOORS outcome:

- DOORS has created a **free, publicly available** collection of **online Training Courses**, connecting DOORS research to vocational learners
- Available beyond DOORS on the LifeWatch online training platform
- See <https://training.lifewatch.eu/>, search for “DOORS”

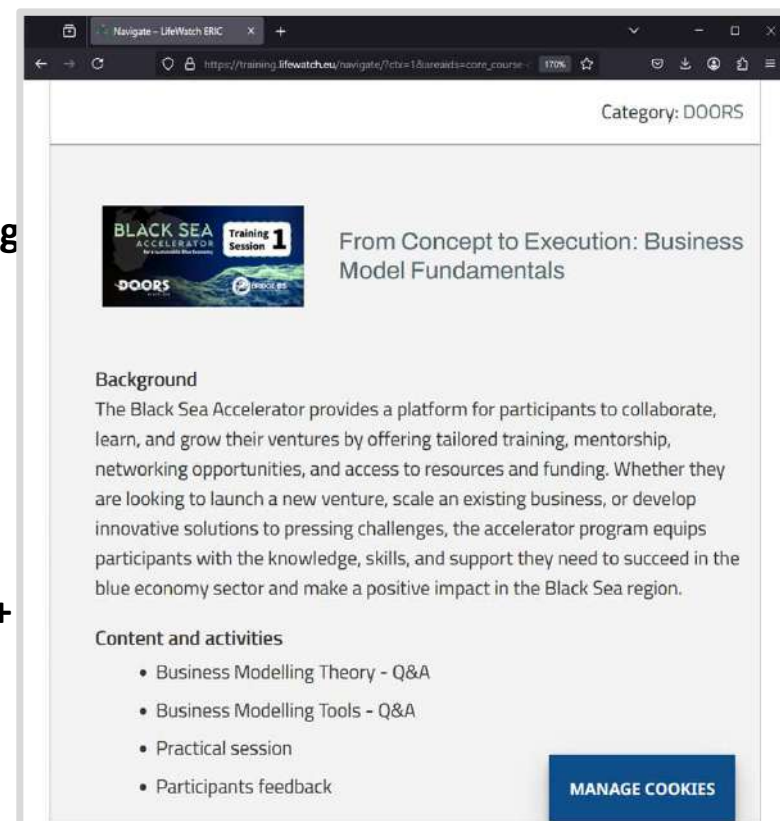
How to best utilise and apply this outcome:

- **Use the learning courses** as part of your professional development.
- Support universities to deliver **Micro-credential** courses, and **ERASMUS+ Blended Intensive Programmes** developed following DOORS guidance
- Support uptake of the courses into local languages (currently in English)

How this supports the CMA:

- Helps equip Black Sea entrepreneurs, innovators and next generation researchers with the latest knowledge about the Black Sea, and skills to innovate with
- Targets vocational, already working, learners as well as others

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Black Sea tailored university and college programme guidance

DOORS outcome:

- Black Sea universities and DOORS partners designed a targeted **Masters programme** – to build key regional skills for **Blue Economy, Marine Sciences, and Marine Policy**
- Masters Programme can be delivered as a **globally prestigious Erasmus Mundus** masters.
- Masters proposition also provides subject guidance for **micro-credential courses**, and **Blended Intensive (Learning) programmes** to immediately target regional skills weaknesses
- Course subjects are **based on extensive surveying** of Black Sea region's Blue Economy knowledge and skillset needs



How to best utilise and apply this outcome:

- **Use the analysis** to guide your national educational goals
- **Support** third level education institutes, universities and colleges, **to deliver courses** in line with the **guidance, and national ambitions**
- Support universities to **deliver the Masters Programme** in their application process



How this supports the CMA:

- Ensures the region's third level sector is actively involved in realising the CMA's Blue Economy ambitions
- Provides evidence-based guidance on what skillsets and knowledge need to be taught in the region.





Ocean Literacy Network

DOORS outcome:

- Established an Ocean Literacy Network in the Black Sea to **enhance public understanding** of ocean science, and sustainability
- Brings together **academia, NGOs, science communicators, and policy experts** from all Black Sea countries involved in DOORS

How to best utilise and apply this outcome:

- **Use the network** to seek expertise and advice
- **Support the work and administration** of this network, encouraging it to grow and embed itself within the Black Sea region
- **Get involved** in the DOORS Ocean Literacy Network, develop enhanced policy connections between your ministries and the Network communities (knowledge, activities, and expertise)

How this supports the CMA:

- The Network's activities foster public engagement, enhance scientific understanding, and promote sustainable practices
- It is a useful connection point to the Black Sea oceans community, for ministries seeking advice and knowledge



Our key-recommendations

- Transform the SoS in an operational Digital Twin (real time digital replica) of the Black Sea, where hydrographic basins are well connected to the Black Sea basin to drive Black Sea's resilience and prosperity
- Enhance the development of the blue economy by advancing sustainable practices, driving innovation, and strengthening collaboration across key maritime sectors
- Expand targeted training and education, from schools to formal and life-long forms for the Black Sea
- Use science and innovation to support a safe and secure Black Sea environment

Discussion: collating feedback on some questions

Moderator, **Jos Brils**, Deltares, The Netherlands



Our questions to you:

- A. Which of the presented outcomes and recommendations are useful to you and why?
 - Which of your existing activities or workstreams do they align with?
- B. How likely are you to utilise and apply these outcomes and recommendations?
 - What challenges to application exist?
 - How can these challenges be overcome?
- C. Do you have sufficient funding instruments available to be able to utilise, apply and sustain these outcomes and recommendations?
 - Which funding instruments you have?
 - Suggestions for establishing of new funding instruments?

Thank you!

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DOORS outcome:

Briefing note

SoS factsheet

BGA factsheet

KTT factsheet

DOORS outcomes in support of the Common Maritime Agenda
The Black Sea Strategic Research and Innovation Agenda turned into action

Research and innovation are central to the European Commission's priority to support sustainable economic prosperity. The 2013 Common Maritime Agenda (CMA) for the Black Sea, and its related Strategic Research and Innovation Agenda (SRIA), are basic-wide initiatives to enhance regional cooperation for achieving a sustainable blue economy on and around the Black Sea. Participating countries committed to addressing common maritime and blue economy challenges across the Black Sea basin.

The CMA sets three goals to support sustainable growth in Black Sea coastal regions:

1. Healthy marine and coastal ecosystems
2. A competitive, innovative and sustainable blue economy for the Black Sea
3. Resilient livelihoods in the Black Sea blue economy

This briefing summarises selected outcomes from the Developing Optimal and Open Research Support for the Black Sea (DOORS) ES Horizon 2020 project. It details recommendations that can help implement the vision set out in the CMA and build on the project's achievements. Taken together, these outcomes and recommendations offer a coherent suite of insights and actions to strengthen the European Union's aspiration for a thriving Black Sea through enhanced marine health, and a burgeoning sustainable blue economy supported by robust and lasting investment and basin-wide cooperation.

Selected outcomes

- DOORS built the System of Systems (SoS), a first of its kind digital platform that integrates heterogeneous data from multiple sources to provide a comprehensive, environmental systems understanding for the Black Sea. The SoS brings together data from in-situ measurements, sensor arrays, satellite-based Earth observation, external repositories and model outputs into a single interactive visualisation platform for the Black Sea with harmonised data models.
- Data from the SoS can be harnessed by a wealth of end-users to support a range of outcomes from better environmental and fisheries management in support of healthy ecosystems, through to rural blue economy prospects supporting everything from safer navigation to the circular economy.
- A range of new, cutting-edge technologies and research methodologies which will contribute to the blue economy were utilised, including the deployment of an advanced 'lab-on-a-chip' technology for measuring hydrogen sulphide; the compilation of the first basin-scale database of underwater heritage; and the first international cruise to investigate Georgian archaeological underwater cultural points of interest.
- An updated characterisation of the environmental status of the Black Sea using state-of-the-art, open-source numerical modelling tools, including the quantification of nutrient distribution, spread of microplastics, wave modelling to quantify the effects of extreme events, morphodynamical and flooding model outputs to quantify the extent of storm effects and barrier beach modifications.
- The Black Sea Accelerator, a match-making platform and access to investments facilitated through a Special Interest Group, both all geared to enhance the sustainable growth of the Black Sea's blue economy.
- Knowledge sharing activities, blue skills development, professional support, learning workshops and targeted online training content that demonstrated the value in investing in community education and shared learning.

System of systems
A one stop shop for standardised data and model outputs to drive evidence-based knowledge development for the Black Sea

INTRODUCTION
The DOORS System of Systems (SoS) is a one stop shop for heterogeneous data (from in-situ measurements, and sensor arrays, satellite-based Earth observations, external repositories and model outputs) into a single interactive visualisation platform.

This gives access to information concerning the Black Sea and a scientific support on how to act and tackle its main societal challenges.
The SoS is designed for:
• promote a culture of openness and share best practice (Knowledge Transfer and Training);
• support sustainable innovation in the Blue Economy for the region (Blue Growth Accelerator).

NOVEL APPROACH
The software is fully open source. Its design permits a rapid access to time series data, swiftly created for regions and variables of interest. The SoS also provides access to real & near real time data, allowing the monitoring of current and forthcoming events such as, for example, the explosion at the Pukhivka dam on 09th June 2023, or the Bertina Storm in November 2023.

The SoS design involved engagement of different groups of stakeholders from the beginning. This allowed them to play a design role in a system that they could use but also to realise that they could retrieve data specific to the different user's needs, including data forecasts or the DOORS in-situ data sets. The data are well documented, and the software provides guidance on how expert users can further develop it.

DOORS BLACK SEA

Developing The Black Sea's First Ever Blue Growth Accelerator (BGA)

SUSTAINABLE BLUE GROWTH POTENTIAL FOR BIOTECHNOLOGY AND OFF-SHORE WIND ENERGY
To DOORS, sustainable Blue Growth means actions that:
• Do not overexploit the Black Sea's natural resources
• Do not litter or pollute the rivers and coastal areas
• Minimise waste production (reduce, reuse, recycle)
• Minimise carbon footprint (reduce climate change) and
• Meets that one Blue Growth sector may hinder another.

DOORS has been a pioneer in the mapping of the Black Sea Ecosystem Services (ES) analysis by using the ES metrics approach and the 10th corporate ES review method. Based on that, we analysed current or underway ES of the Black Sea.

This approach revealed two economic activities with potential for sustainable growth:
• Biotechnology and
• Off-shore wind energy (where the risks and opportunity analysis identified possible key impacts (positive and negative)). We conclude with recommendations for researchers and government of stakeholders to further and sustainably develop the offshore wind energy potential in the Black Sea region.

ACCESS TO FUNDING THROUGH THE SPECIAL INTEREST GROUP (SIG)
The Black Sea SIG brings together a targeted group of interested opinion leaders to raise the profile of the project and to provide direct opportunities for Blue Growth. The aim is to promote the region as a hub for blue innovations by bringing together individuals from the political, diplomatic, and business communities.

So far, the SIG has gathered interest from around 40 investment entities including Family Offices, Venture Capitalists, Business and Philanthropy. Investment prospects include opportunities in Heritage and Tourism, Energy, Aquaculture and Shipping, with a strong focus on AI, aligned with the DOORS System of Systems.

INNOVATION PATHWAYS: GUIDING SUSTAINABLE BLUE ECONOMY DEVELOPMENT
DOORS offered a vision for how Blue Economy should be developed by 2050. This is why innovation pathways were developed as a structured approach to identify key milestones for the long term advancement of Blue Economy. This was done together with stakeholders from all countries, who mapped the road to be taken towards the Vision implementation and relevant milestones along this way.

DOORS BLACK SEA

Enabling Black Sea Communities with Knowledge Transfer and Training

MUTUAL MOBILISATION (MML) WORKSHOPS: LEARNING TOGETHER TO SEEK SOLUTIONS
Mutual Mobilisation (MML) workshops provided platforms for regional and local stakeholders, such as public authorities, businesses, civil society, and stakeholders involved in research and innovation, to explore issues together, express their perspectives, and collaboratively learn. Two rounds of workshops were conducted in Romania, Ukraine, Moldova, Turkey, Georgia, and Bulgaria.

LIFE-LONG LEARNING COURSES: MAXIMISING COMMUNITY ACCESS TO RESEARCH
The results of the discoveries made by the DOORS researchers have been made available to the wider Black Sea community. The Blue Growth Accelerator (BGA) and System of Systems (SoS) products from DOORS, have been developed into short vocational courses for entrepreneurs, researchers, innovators and the commercial start-ups of tomorrow. Courses developed include insights into modelling Black Sea processes, how to use the System of Systems, and business development courses to guide the Black Sea entrepreneurs of tomorrow. These courses are to be released online in April 2023.

DEVELOPING A BLACK SEA-FOCUSED MSC COURSE
DOORS partners further afield are developing an MSC programme to be in operation in 2026-2028 period, that capitalises on the uniqueness of the Black Sea. The two-level programme covers many aspects such as the Black Sea's ecosystems, history, oceanography, geomorphology, enclosed basin characteristics, geopolitics, political transformation and policy diversity.

ENHANCING NEXT-GEN PROFESSIONAL NETWORKS: THE EARLY-STAGE RESEARCHER EXCHANGE (ESRE)
Over 2024, the DOORS ESRE programme supported 6 early-career researchers to travel to and from centres of excellence in the Black Sea region and Europe, to collaborate with a mentor and local specialists. They advanced our knowledge in areas such as social sciences, fisheries, biology, ocean modelling and Earth Observation applications.

DOORS BLACK SEA

All available here: https://drive.google.com/drive/folders/1Wd5Bb11wPRQTIQ7U_nGFw4nMdwo9BSzc

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