

ESTABLISHING AND OPERATING AN INNOVATIVE MARINE TECHNOLOGY TRANSFER NETWORK FOR ENHANCING THE TRANSITION TO A SUSTAINABLE BLUE ECONOMY IN

THE BLACK SEA BASIN INVITATION-INFORMATIONAL NOTE

FOR THE BLACK SEA BLUE GROWTH WORKSHOP SERIES ON

ADVANCED MARINE MONITORING FOR THE SUSTAINABLE BLUE ECONOMY OF THE BLACK SEA

We would like to invite you to the Training Workshop titled “Advanced Marine Monitoring for the Sustainable Blue Economy of the Black Sea” organised by Ilia State University with the support of its Partners in the context of the implementation of the EfxINNOs project (Establishing and Operating an Innovative Marine Technology Transfer Network for Enhancing the Transition to a Sustainable Blue Economy in the Black Sea Basin). Through the EfxINNOs project, six leading organisations from five countries in the Black Sea Basin, co-financed by the Interreg Next BSB program, have joined forces to develop and operate a novel, cost-effective, technologically-advanced, sustainable network of marine monitoring platforms. As EfxINNOs enters its later implementation phase, ISU, together with its Partners, organises a training workshop for young professionals and early-career scientists, grounded in operational experience and validated results. The workshop will combine applied training and strategic insight, drawing on the project’s hands-on use of micro-AUVs, ROVs, and buoys, harmonised data workflows, and ML/AI-based analysis of benthic habitats in the Black Sea and North Aegean pilot sites. Participants will be exposed to the full monitoring chain - from mission planning and data acquisition to interoperable data management, habitat assessment, and policy-relevant interpretation - illustrating how advanced marine technologies can directly support EU and regional policy frameworks such as MSFD, MSP, the Black Sea Integrated Monitoring Assessment Programme and the Blue Economy of the Region. The workshop aims to strengthen capacity for evidence-based marine management, foster professional networking, and equip the next generation of practitioners with practical skills and an integrated understanding of sustainable Blue Economy applications. Participation certificates will be issued to all attendees.

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BASIN

BLACK SEA BLUE GROWTH WORKSHOP SERIES ON

ADVANCED MARINE MONITORING FOR THE SUSTAINABLE BLUE ECONOMY OF THE BLACK SEA

AGENDA

TOPIC	RESPONSIBLE	TIME
REGISTRATION- WELCOME		09:30
Introductory Remarks	Ketevan Kupatadze (ISU)	10:00
An Overview of EfxINNOs	Georgios Sylaios (DUTH)	10:10
Current Advancements in the Real-Time Monitoring of the Black Sea Environment	Ketevan Kupatadze & Nutsa Megvinetukhutsesi (ISU)	10:40
Reanalysis and short-term forecasting of environmental conditions in the Black Sea using CMEMS and EMODnet	Vassiliki Myrintzou & Nikolaos Kokkos (DUTH)	11:15
Underwater drones: AUVs competence, planning, operation, data processing and interpretation for the rapid assessment of several MSFD Descriptors (D1-macroalge, D6//D7 si D10). QA/QC procedures on the marine habitats/marine litter datasets, its harmonisation for submission within PanEuropead data infrastructures: EMODnet and CMEMS	Razvan Mateescu (NIMRD)	12:15
ROV-Based Monitoring of Benthic Habitats in EfxINNOs: Experience from Türkiye Pilot Sites	Yelda Aktan (IU)	12:45
System for analysis of digital images of marine objects	Hristo Nenov (TUV)	13:15

NETWORKING BREAK		13:45
Advanced Monitoring and Modeling in the framework of the Marine Strategy Framework Directive	Georgios Sylaios	14:45 15:45
Use of mAUVs in the monitoring of benthic habitats and marine litter	Vassiliki Myrintzou & Nikolaos Kokkos (DUTH)	15:15
BREAK		15:45
Combining UAV Imagery and In-Situ Surveys for Seagrass Monitoring along the Romanian coast	Adrian Filimon (NIMRD)	16:00
A Systems Architecture for Blue Economy Competitiveness: Data, Standards, Analytics and Deployment in the Black Sea	Dr. Ayse Gazihan, AG Marine Solutions (AGMS)	16:30
Conclusions	Ketevan Kupatadze (ISU) & Georgios Sylaios (DUTH)	17:00
END OF DAY		17:30

15:00-
16:00

INFORMATION ABOUT THE WORKSHOP SPEAKERS

SPEAKER NAME: PROF. KETEVAN KUPATADZE

AFFILIATION: ILIA STATE UNIVERSITY

EMAIL: ketevan_kupatadze@iliauni.edu.ge

SHORT CV: Ketevan Kupatadze is a Full Professor of Chemistry at the Faculty of Natural Sciences and Medicine, Ilia State University. One of her main research areas is environmental chemistry. She's recent projects, research activities, and scientific publications are largely focused on this field. She is the author of approximately 100 scientific publications. She is actively engaged in pedagogical activities and is also involved in the popularization of chemistry. Recent significant projects include:

REACT – Network for Alerting and Managing Public Safety and Resilience (REACT-NATO), 2020–2023

JOINT OPERATIONAL PROGRAMME “BLACK SEA BASIN 2007–2013 – A Black Sea Network Promoting Integrated Natural Wastewater Treatment Systems (WASTEnet); Project Regional Scientific Coordinator, 2013–2015

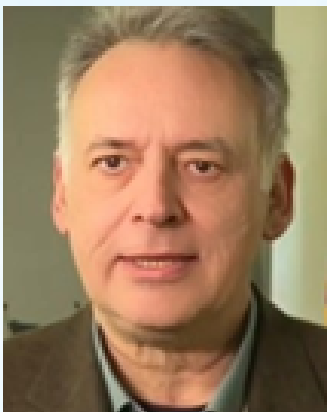
COPERNICUS ASSISTED ENVIRONMENTAL MONITORING ACROSS THE BLACK SEA BASIN, Joint Operational Programme “Black Sea Basin 2013–2022”

CACHE-NATO, 2024–2027

Establishing and Operating an Innovative Marine Technology Transfer Network for Enhancing the Transition to a Sustainable Blue Economy in the Black Sea Basin (EfxINNOs),

2024–2027

She is the **Editor-in-Chief** of the journal Tche Quimica (<https://www.journal.tchequimica.com/can.php>).



INFORMATION ABOUT THE WORKSHOP SPEAKERS

15:00-
16:00

SPEAKER NAME: PROF. GEORGIOS SYLAIOS

AFFILIATION: DEMOCRITUS UNIVERSITY OF THRACE, GREECE

EMAIL: gsylaios@env.duth.gr

SHORT CV: **GEORGIOS SYLAIOS** is a Full Professor at the Democritus University of Thrace (DUTH), Department of Environmental Engineering, Xanthi, Greece. He was the Chair of the Department from 2014 to 2016. Sylaios is the Director of the Laboratory of Ecological Engineering and Technology. He is a physical oceanographer by training, with extensive experience in coordinating European and nationally funded research projects. He has coordinated 36 research projects with a total DUTH budget of approximately 6.5 MEuros. He coordinated ODYSSEA, a Blue Growth research project funded under Horizon 2020, with a budget of 8.4 million Euros. His publication list includes ~300 scientific publications, 110 of which are published in peer-reviewed international journals. His works have received more than 3,500 citations (h-index 34). Sylaios research interests lie in the field of digital twins of marine and maritime activities; marine renewable energy systems (wind farms, wave energy systems, salinity gradient energy systems); environmental monitoring and operational modeling of marine and coastal environments; hydrography and biogeochemistry of oceans and coasts; hydrology and nutrients management of streams and rivers (mostly heavily modified); precision irrigation and water saving technologies at farm scale; numerical models nesting, coupling and predictive operation; big data management, artificial intelligence, machine learning, and neuro-fuzzy modeling.



SPEAKER NAME: SCIENTIST, NINO (NUTSA) MEGVINETUKHUTSESI

AFFILIATION: ILIA STATE UNIVERSITY

15:00-
16:00

EMAIL: nutsa@gis-lab.ge

SHORT CV: Nino (Nutsa) Megvinetukhutsesi is a scientist at the Institute of Botany at Ilia State University and a Geoinformatics Specialist at GIS-Lab, with a strong background in environmental and life sciences. She earned her Master of Science from the Faculty of Geography/Geology at Ivane Javakishvili Tbilisi State University (TSU) and completed specialized training in Cartographic and Graphic Design and Ecological Data Management at the UNEP/GRID-Arendal Centre in Norway. She also completed the summer course “Geoinformation Science and Earth Observation (Spatial Modeling of Biological Ecosystems)” at the University of Twente, Enschede, the Netherlands. Nutsa works in a multidisciplinary capacity, developing methods for natural resource assessment and GIS-based mapping to promote the uptake and use of Earth science knowledge in support of spatial planning. She also serves as a visiting lecturer at Ilia State University, delivering lectures to master’s program students. Her primary research interests include natural resource assessment, remote sensing, and GIS mapping. She has contributed to several key projects, including PONTOS (Copernicus Assisted Environmental Monitoring Across the Black Sea Basin) and CORINE Land Cover (CLC) implementation in Georgia and Technical assistance for identifying local climate refugia in the mountainous areas of Georgia (CNF).



SPEAKER NAME: NIKOLAOS KOKKOS

AFFILIATION: DEMOCRITUS UNIVERSITY OF THRACE, GREECE

15:00-
16:00

EMAIL: nikolaoskokkos@gmail.com

SHORT CV: Dr. Nikolaos Kokkos is a Research Assistant at the Laboratory of Ecological Engineering and Technology within the Department of Environmental Engineering at Democritus University of Thrace (DUTH), Greece. He holds a B.Sc. in Environmental Engineering and a Ph.D. in Oceanography from the same institution. His research expertise is rooted in physical oceanography, with a specialized focus on the modeling of coastal and open-sea circulation, stratification-mixing dynamics, and the analysis of satellite remote sensing data. His current work emphasizes environmental monitoring and the operational modeling of marine environments, as well as the development of integrated digital tools for marine system assessment. Additionally, he is engaged in big data management and full-stack development to support research infrastructure and applications. Building on his extensive background in coastal monitoring, he is a key contributor to the EfxINNOs Project, where he utilizes Autonomous Underwater Vehicles (AUVs) to map *Posidonia oceanica* meadows in the Thracian Sea. His technical expertise includes the operational deployment of AUVs and the advanced processing of side-scan sonar imagery to assess sensitive benthic habitats. This work aligns with his previous contributions to a wide array of international research projects, including ODYSSEA, ILIAD, and EcoScope.



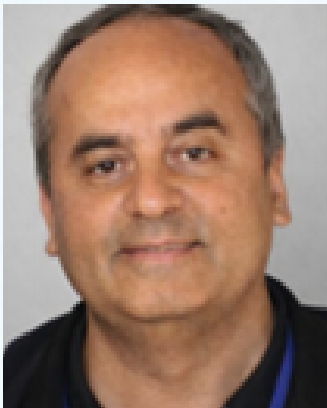
SPEAKER NAME: VASSILIKI MYRINTZOU

AFFILIATION: DEMOCRITUS UNIVERSITY OF THRACE, GREECE

15:00-
16:00

EMAIL: vickymyr@gmail.com

SHORT CV: Vassiliki Myrintzou is a Research Assistant at the Laboratory of Ecological Engineering and Technology within the Department of Environmental Engineering at the Democritus University of Thrace (DUTH), Greece. Her research focus is dedicated to the application of advanced marine technologies for the assessment of sensitive marine ecosystems. She specializes in side-scan sonar (SSS) image processing, specifically for the identification, mapping, and monitoring of benthic habitats. Her technical expertise involves the translation of acoustic data into high-resolution seafloor maps to support environmental conservation and spatial planning. Currently, she is a member of the EfxINNOs Project, where she plays a vital role in mapping *Posidonia oceanica* meadows across the Thracian Sea. In this framework, she manages the complex processing workflow of side-scan sonar imagery collected via Autonomous Underwater Vehicles (AUVs). Her work is instrumental in developing technology-driven monitoring protocols that enhance the accuracy of sensitive habitat assessments within the Mediterranean and Aegean marine environments.



SPEAKER NAME: RAZVAN MATEESCU

AFFILIATION: NATIONAL INSTITUTE FOR MARINE RESEARCH AND DEVELOPMENT "GRIGORE ANTIPA"

EMAIL: rmateescu@alpha.rmri.ro

15:00-
16:00

SHORT CV: Dr. Eng. Razvan Mateescu, born in 1971, is Senior Researcher in NIMRD/Head of the Department of Physical Oceanography and Coastal Engineering. He has experience on management of national and international projects related to BS oceanography, marine and coastal hydrodynamics, shoreline/bathymetry/sea level monitoring, marine/coastal data management and modelling, coastal erosion/vulnerability, river technical hydrology, EIA, ICZM. In the last 28 years, he accumulated specific experience in coastal processes survey/surveillance using all best available techniques in coastal oceanography: ADCPs/ADPs and CTDs, AUV/ROV/UAVs, Oceanographic Radiometers, etc. member in joint cruises on Black Sea. He has been involved in many international/national projects: WBLESS, MedGOLSS Programme, ARENA, ASCABOS, ECOOP, TASAUL, PlanCoast, MarCOAST, SeaSearch (for Marine Data Management), SeaDataNet (PanEuropean Infrastructure for Ocean & Marine Data), Black Sea Scene (regarding to Black Sea Network), NATO SfP: Bio-optical characterization of the Black Sea for remote sensing applications, ESA/PECS- "Ocean colour – Application for the Western Black Sea", Romanian Masterplans for coastal protection (2011), Danube ISPA Project (2010-2012), CoCoNet (2013-2016), Ecorys (2013-2016), Marsplan (2016-2017), ECOMAGIS, COSMOMAR (2013-2017), as well participant/responsible within H2020/EMFAF/Horizon Europe/SBEP - ongoing Projects: Iliad, Doors, Response, Danser and DIVE. Responsible or scientific coordinator for CMEMS' funded projects: iSWIM, ShyFISH, SafeBLESS, Syroco and Syroco – 2025.



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NEXT Black Sea Basin

SPEAKER NAME: PROF. DR. YELDA AKTAN

AFFILIATION: İSTANBUL UNIVERSITY, TÜRKIYE

EMAIL: yaktan@istanbul.edu.tr

15:00-
16:00

SHORT CV: Prof. Dr. Yelda Aktan is a Professor at the Faculty of Aquatic Sciences, Istanbul University. Her research focuses on coastal and marine ecosystems, including seagrass meadows, benthic macroalgal communities, and phytoplankton dynamics, with particular emphasis on their responses to environmental pressures such as eutrophication, harmful algal blooms, and habitat degradation. She has extensive experience in long-term and seasonal ecological monitoring based on field studies conducted along the coasts of Türkiye. She conducted postdoctoral research in algal ecology at the University of Sassari, Italy, and has published widely in peer-reviewed international journals. In recent years, she has applied ROV-based observations and image-supported monitoring approaches to the assessment of sensitive benthic habitats. Building on her experience in the RAC/SPA- coordinated MedPosidonia Project, which focused on the inventory, mapping, and monitoring of *Posidonia oceanica* meadows in the Mediterranean, she applies this expertise to technology-supported benthic habitat assessments within the EfxINNOs Project. She has participated in numerous nationally and European Union-funded projects and contributes to the development of technology-driven, application-oriented marine monitoring approaches through the Türkiye pilot sites of EfxINNOs.



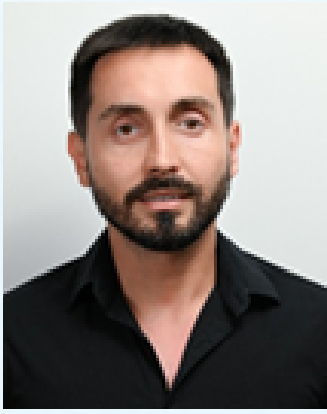
SPEAKER NAME: HRISTO NENOV

AFFILIATION: TECHNICAL UNIVERSITY OF VARNA, BULGARIA

EMAIL: h.nenov@tu-varna.bg

15:00-
16:00

SHORT CV: Assoc. Prof. Hristo Nenov, Ph.D., is a faculty member at the Technical University of Varna, Bulgaria, with interdisciplinary expertise in artificial intelligence, software engineering, and intelligent cyber-physical systems. His research focuses on the development of physics-informed and data-driven methods for the monitoring, optimization, and digital transformation of complex industrial processes. He has substantial experience in machine learning, time-series analytics, and digital twin architectures supporting predictive maintenance, operational intelligence, and energy efficiency in industrial environments. His work emphasizes the fusion of physically grounded models with AI techniques to ensure reliability, explainability, and industrial applicability. Within the EfxINNOs Project, he coordinates a multidisciplinary team working on artificial intelligence, Autonomous Underwater Vehicles (AUVs), and environmental monitoring, contributing to advanced data analytics for Blue Economy applications. Response, Danser and DIVE. Responsible or scientific coordinator for CMEMS' funded projects: iSWIM, ShyFISH, SafeBLESS, Syroco and Syroco – 2025.



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NEXT Black Sea Basin

SPEAKER NAME: DR. ADRIAN FILIMON

AFFILIATION: NATIONAL INSTITUTE FOR MARINE RESEARCH AND DEVELOPMENT “GRIGORE ANTIPA”

EMAIL: afilimon@alpha.rmri.ro

SHORT CV: Adrian Filimon, PhD, is Senior Scientist and Head of the Marine Ecology and Biology Department at the National Institute for Marine Research and Development “Grigore Antipa” (NIMRD), Romania. With over a decade of experience in Black Sea marine research, he specializes in benthic habitats, biodiversity monitoring, and marine ecosystem assessment. He combines scientific diving, high-resolution spatial data acquisition, and quantitative ecological analysis to investigate habitat structure, ecosystem resilience, and restoration potential. He has coordinated and contributed to multidisciplinary national and international research activities addressing marine habitat monitoring, ecosystem-based management, and environmental impact assessment within European regulatory frameworks. His work integrates field-based ecological research with advanced spatial analysis and applied conservation strategies to support evidence-based marine management and habitat restoration in the Black Sea region. He is the author and co-author of numerous scientific publications, including peer-reviewed articles and scientific books. He has also participated in several major European-funded projects in the Black Sea region, including DOORS, BRIDGE-BS, EMODNet Biology, ANEMONE, MARSPLAN-BS and MISIS, strengthening regional monitoring capacity, ecosystem-based management, and cross-border scientific collaboration.



SPEAKER NAME: DR. AYSE GAZIHAN

AFFILIATION: AG MARINE SOLUTIONS (AGMS), TURKIYE

EMAIL: ayse@agmarinesolutions.com

15:00-
16:00

SHORT CV: Dr. Ayse Gazihan is the Founder and Director of AG Marine Solutions (AGMS) and a science-to-impact strategist specializing in next-generation Blue Economy innovation from marine ecosystem intelligence to maritime digital transformation. Trained as an ocean modeller (PhD, METU Institute of Marine Sciences), she has led and contributed to multi-partner programmes across Europe and Türkiye, combining ecosystem modelling, decision-support design, stakeholder alignment, and innovation roadmap delivery. Her track record spans EU research frameworks, international consortia, and national policy infrastructures, where she developed ecosystem indicators and modelling outputs for evidence-based environmental assessment. She created the Ocean 4.0 Program to mobilize public-private-academic actors around digital maritime capabilities, and coordinated Captains of the Blue Growth (MSCA & Citizens), scaling marine literacy through EU-wide networks and interactive tools. AGMS contributes to EfxINNOs workstreams supporting actionable decision-making across the Black Sea Basin.