

RESPONSE

Building Response Frameworks under existing
& new Marine Pollution Challenges in the Black Sea



Deliverable D3.2

**Report and material of the advanced
training courses**



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Project background and context

The RESPONSE, supported by the European Union EMFAF, under Grant Agreement no 101124661 has duration of 36 months, starting from 01.10.2023. The project consortium involves six partners from five different countries: Greece, Bulgaria, Romania, Ukraine and Georgia. Five of the participants are based in countries bordering on the Black Sea, and the lead beneficiary, the Aristotle University of Thessaloniki (AUTH), has a long history of working with the region and with members of the consortium. The partnership includes one university, two research institutes and three environmental NGOs: the Black Sea NGO Network (BSNN) regional NGO network based in Varna, Bulgaria; the National Institute of Marine Research and Development (NIMRD), based in Constanta, Romania, leading research institute for the Black Sea; the Institute of Market and Economic & Ecological Researches of the National Academy of Sciences of Ukraine (SO IMEER NASU), Odesa, a public institution, part of the National Academy of Sciences of Ukraine; the Black Sea Branch of Ukrainian Environmental Academy of Sciences (BSBUEAS) is Odesa-based NGO with a team of professional researchers; and the Greens Movement of Georgia / Friends of the Earth (GMG/FoE) – Georgia, an NGO, part of the international environmental network. All three beneficiaries from EU Member States have extensive experience in marine pollution projects under the Horizon 2020 and Horizon Europe programmes.

RESPONSE aims to identify and promote the development and establishment of new-generation advanced training schemes and curricula to support early warning, region-wide mechanisms for monitoring natural and man-made disasters. Various training programs, platforms and curriculum have been implemented to monitor marine pollution and ensure knowledge integration and dissemination. Still, training material, best practices, standards and protocols often differ among platforms and programs, hindering progress towards implementing an integrated, transdisciplinary and multidisciplinary marine pollution training system. Peculiar events, such as armed conflicts, create new environmental and societal challenges that call for international, coordinated responses.

RESPONSE acknowledges the importance of deeper understanding of marine ecosystems and river-delta-sea connections, the need for development of harmonized procedures, standards and methodologies in marine monitoring across the Black Sea countries to support healthy and resilient seas and foster integrated marine governance. The sustainable changes that are required for the establishment of efficient, advanced training schemes that would be integrated with the challenges, goals and specificities of the scientific and social context and make the most of the untapped capacity of stakeholders to promote regional awareness in the field.

In view of the background and context described above, the four overarching objectives of RESPONSE are: 1) IDENTIFY and UNDERSTAND the institutional and societal gaps and needs for effective, integrated, transdisciplinary and multidisciplinary marine pollution training systems; 2) DEVELOP effective training programs by assembling, integrating, and improving the most promising approaches and results into a comprehensive framework that consists of a set of methodological training tools, databases, policy recommendations, and background information; 3) SUPPORT the implementation of the EU and Regional Strategies, by developing operational guidelines for effective application, updating, monitoring and management of training programs on marine pollution; 4) EMPOWER marine pollution training, monitoring and mitigation by involving, inspiring and influencing stakeholders through a broader vision of co-design, co-creation, co-

establishment, co-implementation and co-assessment of the training programs.

Executive summary

This report describes the training process and materials of the advanced training courses in the four Black Sea countries. It is a key phase of the process which involves four national pilot trainings and one regional workshop to review and support the advanced training courses implementation. The trainings and workshop were conducted in close collaboration with stakeholders engaged in marine pollution preparedness and response in the Black Sea region.

The report traces the logical development of the process starting with the state of paly co-creation of advanced training curricula in the riparian countries, the adoption of methodology for the training and the production of national operation plans for training, their validation on regional level, and conducting of the actual training events, receiving feedback from participants and monitoring of achievements.

Through the marine pollution preparedness and emergency response national training activities with a specific focus on pollution from armed conflicts, and the regional training workshop, this deliverable builds on the co-creation participatory process within the RESPONSE project, further engaging key stakeholders, supporting the use of digital infrastructure and digital tools, promoting policy coherence and fostering regional frameworks, and thus moving towards practical implementation of advanced new generation training courses with relevant training programmes helping to effectively protect the Black Sea marine environment.

This report presents the training materials and specifications that establish the foundation for implementing the further advanced training activities within the project and outline the process leading to the adoption of the Regional Action Plan (RAP) for training and achieving sustainability of results.

Having approved a set of general regional strategic goals for RAP ensuring the continuation of the process of knowledge and capacity building on training, contingency planning, coordination, and long-term institutional developments, the RESPONSE partnership now takes the next step engaging in pilot training those stakeholders that are capable of taking up the process and developing the further integration of a large number of pollution sources, including pollution from armed conflicts, in the monitoring and pollution management activities for the Black Sea.

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Introduction

The purpose of this report is to present the activities and results that associate with the pilot trainings and the materials used for the training courses of the RESPONSE project advanced curricula on preparedness and response to marine pollution. The deliverable describes activities of Task 3.2 (T3.2) Training on the set-up and operation activities towards marine pollution management, which is part of Work Package 3 (WP3) Setting-up and operating new curricula on marine pollution.

The work package objectives are:

- develop comprehensive operational plans to solidify the application and effectiveness of marine pollution training
- empower the set-up and operation activities towards marine pollution management
- monitor the performance of training curricula and highlight new perspectives.

Being part of the overall project logical framework, the task addresses the second objective and has the aim to provide actual training to selected stakeholders on how to set-up, reach operational readiness and run training courses.

The process follows several consecutive steps building on previous achievements and providing links to the further testing and refining the training curricula that were developed in the project. The description of the steps is being addressed further in the deliverable.

1. Structured steps and process of RESPONSE advanced training courses

The RESPONSE Project aims to enhance preparedness and response mechanisms for marine pollution in the Black Sea region. Within Task 3.2, the project focuses on training on the set-up and operation activities towards marine pollution management. The task builds on the methodological guide and Digital Toolkit developed under Task 2.3, and replication guidelines from Task 2.4.

Building upon the finding and products of RESPONSE under previous Work Packages 1 and 2 and Task 3.1, the Task 3.2 contributes to the creation of training capacity on marine pollution incidents in the Black Sea for all involved stakeholders following several steps.

Step 1: Co-created training curricula and Digital Toolkit

- The advanced training courses for the development of training capacity on marine pollution incidents for all involved stakeholders in the Black Sea rely very strongly on the co-created training curricula in task T2.1 and the operational use of the Digital Toolkit of task T2.3.
- They enable active and effective responses to pollution and environmental safety challenges.

Step 2: Comprehensive operational planning

- The advanced training courses are based on the jointly developed and regionally validated methodology for the tailored training operational plans for the Black Sea countries. It supports the production of tailored operation plans for each of the partner littoral countries. The plans have adopted a ten-step methodology for the operational training from set-up to actual implementation of training and the update process.
- The plans comprise important elements such as objectives, activities and tools, stakeholder groups to be involved, recruiting and retaining new participants, key performance indicators and quality indicators and evaluation criteria, timetable for actions and the roles of training administrators, and procedures, guidelines, and templates for effectively collecting feedback to be used for performance evaluation.

Step 3: Prepare 4 pilot training curricula

- Design and prepare material for pilot training four training curricula for each of the Black Sea countries.
- They comprise modules covering topics addressing the needs of selected organizations and authorities among the stakeholders' network.
- These training curricula will include modular courses, at least four in each curriculum.

Step 4: Design and hold pilot trainings

- The partners design and hold four national trainings for selected stakeholders on how to set-up, reach operational readiness and run the training courses. Key actors (key stakeholders identified in T1.1 in the stakeholder mapping and important actors designated for involvement in T4.2) are to be trained and certified in accordance with the operational plans.

- This is the essence of the current task T3.2 that comprises a regional two-day workshop in addition to national trainings. The workshop provides guidance to partners and intensive training on how to operate their training courses, covering from the set-up phase over to the implementation activities.
- Ad hoc consultations, meetings, webinars will support the pilot trainings process and extend networking in and outside the consortium.

Step 5: Propose improvements

- The partners will propose improvements of the training curricula.
- Lessons learned, additional content and suggestions for refining the training curricula that emerge are to be provided by the partners.
- The partners are to share and deepen their knowledge in the process of implementing and managing the efficient operation of training.

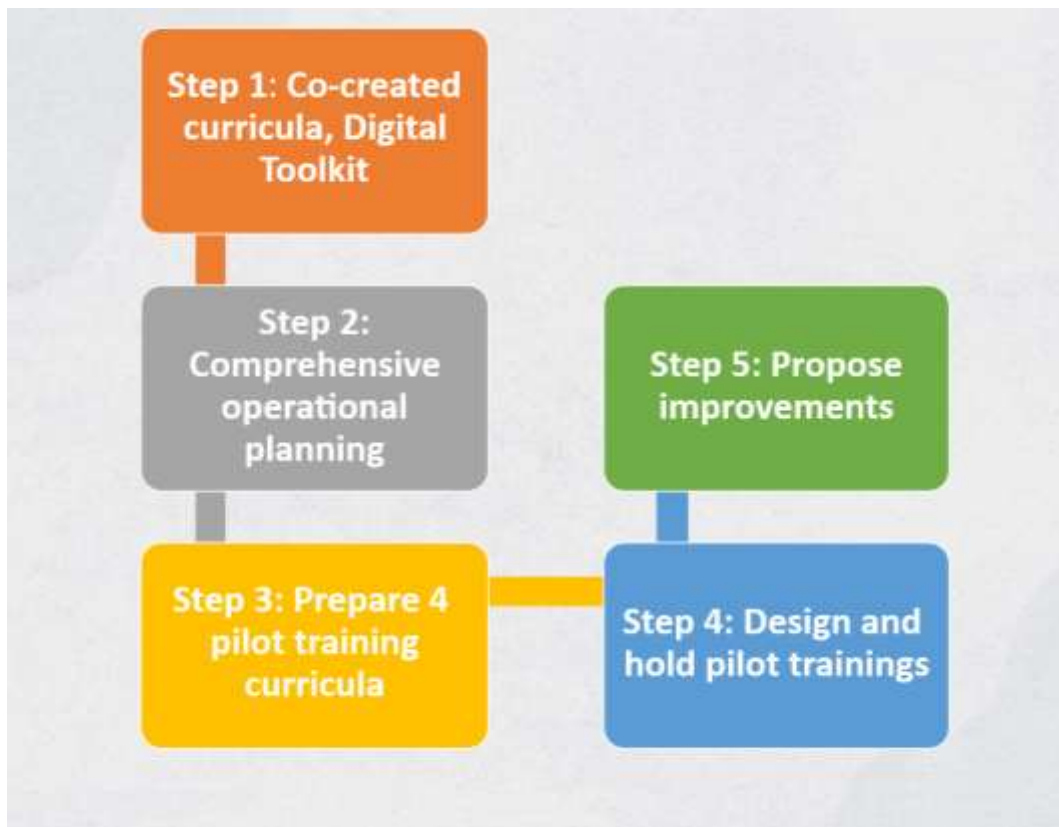


Figure. 1 The steps followed in the design, preparation and implementation of the advanced training courses

The process envisages active participation of all relevant stakeholders, including policy makers, administrations, scientists, experts, NGOs, and the public ensured through co-designing, elaborating, testing, improving, and implementing the RESPONSE training outputs.

2. The pilot advanced training courses in the Black Sea partner countries

The RESPONSE partners prepared and held advanced marine pollution preparedness and emergency response national training courses, with a specific focus on pollution from armed conflicts. The work on the training courses started in month 24 building on the co-creation participatory process within the RESPONSE project, further engaging key stakeholders, supporting the use of digital infrastructure and digital tools, promoting policy coherence and fostering regional frameworks in the process of practical implementation of relevant training with programmes aiming to effectively protect the Black Sea marine environment.

The main actors in all Black Sea countries are government agencies with clearly defined responsibilities in the existing legislation. An additional but important role is played by research institutes and academia involved in monitoring, curriculum development, and training. A lesser role is played by business associations and NGOs with specific expertise. Throughout the project implementation period the partner teams have worked closely with those stakeholders.

The key stakeholders of RESPONSE, identified in the stakeholder mapping process, have been continuously engaged in outreach activities to keep them informed about the progress of the project and to involve them in the co-creation process and its development at national and regional level. The key stakeholders have also been directly involved in the mapping of the legislative, institutional, and operational context in the participating Black Sea countries. Their organizational structures, needs and training capacity have been assessed. They have been key actors in the co-creation of the training curricula on national level, the monitoring and evaluation activities, the production of national training operation plans.

The scientific knowledge and information from the RESPONSE studies, identifying and evaluating the types and impacts of marine pollution, including those from armed conflicts, and recognizing tools that are being used to address these impacts helped to involve key players and focus on real-life marine pollution and response issues and the elaboration of tailored training operational plans.

The advanced training courses are based on the above complex of activities and attitudes resulting in empowerment of the set up and operation of activities towards marine pollution management.

2.1 The advanced training course in Bulgaria

The pilot training in Bulgaria was prepared in the period after September 2025 with active involvement of key stakeholders from local authorities, academia, maritime and environmental administrations, scientific institutes, environmental and expert NGOs,

Training workshop in Bulgaria

Place: Varna, hall of the Golden Tulip Hotel

Date: 11 December 2025

Attendance – total number of participants 30; categories of stakeholders represented: participants from Varna, Burgas and Dobrich representing key stakeholders from the RESPONSE perspective:

Varna Municipality, Institute of Oceanology – BAS, Executive Agency Maritime Administration, Navy, Ministry of the Interior – Border Police Burgas, Technical University of Varna, Department of Ecology and Environmental Protection, experts from the Nature Park “Strandja” – Burgas region, NGOs and maritime professionals from the NE region.

Professional affiliations of participants by category: 21 % marine administrations, navy, border police; 17% representatives of local authorities and supporting volunteer teams; 10% IO – BAS and other scientists; 28% academia mostly TU – Varna; 24% expert and environmental NGOs.

Implemented by: Black Sea NGO Network (BSNN)

Process of preparation overview

The *preparation of the advanced training course* in Bulgaria began with overview of the RESPONSE findings and outputs.

- Key stakeholders identified in the RESPONSE process were engaged in communication to involve in the training process, the selection of material and the advanced training courses.
- The tailored national operational plan was reviewed and discussed. The training gaps and monitoring challenges have been addressed in view of the curriculum topics:

Training gaps and monitoring challenges:

- ✓ Oil spills are the focus of most in-house training.
- ✓ Few comprehensive programs address pollution in a broader sense (chemical spills, garbage, hazardous substances).
- ✓ Maritime academies are in compliance with IMO/MARPOL standards for seafarers, but do not thoroughly cover multi-agency response or advanced surveillance.
- ✓ Data collection is fragmented and carried out by different agencies (e. g. Black Sea Basin Directorate, Institute of Oceanology, Health Inspectorates).
- ✓ There is a need to integrate the indicators of the Marine Strategy Framework Directive (MSFD) and to ensure synergy with the National Oil Pollution Emergency Plan for the Black Sea.

The training process was reviewed following the jointly adopted 10-step methodology for the training.

- The selection of modules for the training course was aligned with the general finding and requirements of the co-creation and co-planning process comprises the following modules:

Module 1: Introduction to Marine Pollution (Types, Sources, Black Sea Context)

Module 2: Policy and Governance (International and National Legal Frameworks)

Module 3: Monitoring and Assessment (Remote Sensing, Data Access/Early Warning Systems)

Module 4: Pollution Management and Response (Techniques, Risk Reduction, Cleanup)

Module 5: Preparedness Planning (National Plans, Simulations, Training Exercises)

Module 6: Digital Tools and Innovation (Interactive training modules /IT Portals, ML and AI)

Module 7: Community Engagement and Public Awareness (Citizen Science, Media Relations)

The advanced training course is intended to combine a selection of four modules depending on

the needs and requirements of the audience. The modules with content and envisaged number of lessons/lectures/exercises are available in the Annex I. The envisaged training courses' duration is one to one and a half days.

- The RESPONSE Digital Toolkit was introduced to stakeholders with its resources enabling them to design and implement effective marine pollution preparedness and response training. Its specialized training frameworks enable audiences to address diverse themes and audience needs.

Training workshop objectives, audience, scope

The training workshop **objectives** were identified in the co-creation process. They include:

- to increase the understanding of local government units and civil protection authorities on their roles in marine pollution emergency response and post-incident recovery and enhance their capacity to address the issues;
- to engage staff of administrations, institutions and agencies involved in marine pollution preparedness and emergency response on specific marine pollution issues in accordance with the relevant legislative framework, introduce new technologies to monitor pollution incidents
- to strengthen the capacities of environmental authorities, emergency response units, and other key stakeholders in responding to marine pollution incidents arising from or occurring during armed conflicts.

The training workshop audience comprised key stakeholders from the coastal area with adequate representation of the stakeholder groups by professional affiliation.

The following two groups of **target participants** have been identified in the process of preparation for the training course: 1) decision makers, representatives of administrations and institutions, especially people participating in civil defence units and teams, emergency response teams, businesses involved in training activities, local communities, volunteers, NGOs, media etc. – interested in short 1-to-1.5-day courses, problem-oriented training, use of the project online platform and tools; 2) representatives of education institutions and academia, university students, distance learning students, other maritime professionals - interested in extracurricular programmes and studies, use of combinations of modules, use of the online platform and tools of the project.

The training course designated as main target participants the emergency response teams and environmental agencies, followed closely by the local authority administrations. Bulgarian legislation assigns preparedness and emergency response functions related to marine pollution to both emergency response teams (of maritime administrations and border police) and emergency/civil defence teams of the local authorities. The workshop prioritization of target audiences covers adequately the situation in Bulgaria. Moreover, the funding for remediation measure for post-incident recovery is provided to the local authorities.

The advanced training course has a wide **scope** of topics integrated into its modules that include: marine pollution sources, types and impacts and related to the Black Sea characteristics with focus on oil spills and response strategies; marine pollution policies and governance on national and regional level; monitoring and assessment, methods and tools, national and regional programmes

and relation to implemented policies; national plans for preparedness, pollution management and response (techniques, risk reduction, cleanup strategies); use of digital and innovative tools for monitoring; citizen engagement and public awareness.

The scope of the advanced training course has been associated with four **general areas** of the selected topics that include: - main types, sources and impacts of marine pollution; - preparedness (monitoring, and assessment, risk assessment); - plans, emergency response, pollution management and response training with special focus on pollution due to war conflicts; - and environmental rehabilitation issues and techniques. The Black Sea perspective and community engagement, volunteer involvement and citizen science are important elements of the advanced training course.

Training workshop proceedings

The invitation for the training was sent to over 50 experts of the indicated institutions and agencies at the beginning of November 2025. About half of them attended the training course entitled "*Monitoring and Operational Activities for the Management of Marine Pollution in the Event of Disasters and Accidents*". The topics have been selected to cover the areas: main types of marine pollution, Black Sea issues, pollution sources and impacts, monitoring of pollution, preparedness and response to pollution, management of pollution, volunteer support to operational and rescue activities. Demonstration video of the Digital Toolkit was

The training course began with brief review of the RESPONSE project objectives, tasks, cross-border cooperation role and basic outputs. The Project *methodology* for conducting training on marine pollution management, the selected *training modules* product of co-creation activities, and specific features of the Black Sea were also presented. Guest lecturers presented **monitoring activities**: types pollution and monitoring of the marine environment on national, intelligent systems for marine environment monitoring with DNA of the project BRIDGE – BS, citizen science platform for Remote Water Monitoring and Analysis System – Water Warden.

The next group of presentations comprised **management of pollution** topics - planning for maritime emergency response to disasters and accidents, national oil spill emergency plan for the Black Sea and exercises, case study analysis of the accident with the Vera Su vessel, response preparedness to marine pollution caused by military operations, based on materials from Ukraine.

Another group of presentations comprised topics **preparedness** for marine pollution emergencies – risk assessment for the marine environment and vulnerable areas, **rehabilitation and rescue** - rescue practical training for volunteers useful in coastal and marine pollution emergencies, protocols for rescue of marine mammals and birds in Bulgaria, citizen science in addressing marine litter pollution experience.

Digital Toolkit demo video was presented to the audience and discussed by the participants.

Interactive guided discussion on the seven training modules followed and feedback was provided by the participants.

Stakeholders' responses

- Very positive to the training course topics and sphere

- Predominant high to very high rating for usefulness, quality of discussion
- High interest to the Digital Toolkit

Points raised, suggestions

- More case studies based on experience to be included in the courses
- Indication to platforms for data from distant monitoring, etc. for practical use, decision support
- Topics to be developed at the request of trainees

Issues and comments

- More time for the training requested by several participants
- Support materials with detailed explanations necessary to help the development of some topics of the training courses

Interactive process – the participants were asked to review and rank the training modules in terms of interest to the audience, significance and usefulness for the training purposes.

- Modules ranked as most significant in the three categories are 3, 4 and 5 with focus on remote sensing and data analysis, risk assessment and training for capacity building for marine pollution response
- New topics for training suggested – *Module 4 topic* – detailed risk-assessment with monitoring data and scenarios to support planning for administrative personnel; *Module 7 topics and ideas for awareness and community involvement* – citizen science apps for marine pollution emergency monitoring; campaigns for virtual adoption of rescued wildlife (to support financially the veterinary clinic for wildlife in Stara Zagora); regular awareness events and thematic competitions for the public; RESPONSE thematic days of open doors for scientific institutes, universities; examples of successful good practices of community involvement.

Feedback from the workshop – diagrams, review of comments/ideas are presented in the Annex 1. Average rating of the event (online rating) is 4.64 out of maximum 5 which is considered an excellent achievement. From a total of 29 participants 11 provided feedback online and 14 on paper assessment forms with very similar results.

Workshop summary

Key points/topics of the training: Black Sea issues and pollution sources, types and impacts, including pollution from armed conflicts, monitoring and assessment of pollution, intelligent systems for marine environment monitoring, use of remote sensing techniques for pollution monitoring, management of pollution with planning for maritime emergency response, national oil spill emergency plan, case study analysis of an accident, risk assessment for the marine environment and vulnerable areas, rehabilitation and rescue, volunteer training, protocols for rescue of marine mammals and birds, citizen science in addressing coastal pollution.

Monitoring and evaluation process

Number of trained experts at the national workshop: 29 (Specific indicator 9 relevant to T3.2, AI 9 (Achievement indicator AI 9 – increased number of participants in training and operational activities)

Open participatory process for set-up and operation of training courses toward marine pollution management is evident and well documented.

Key stakeholders from marine/maritime/civil defence administrations/services, science, academia, NGOs, volunteers, independent experts participate in the process from the start to advanced training courses implementation.

Comments/quotations/responses from participants

Interest in the Digital Toolkit expressed clearly by participants from maritime administration executive agency, experts from the higher education and technical institutes

Monitoring platform using distant monitoring to provide real time data for eutrophication (Water Warden) highly appreciated by the local administration of Varna

Five suggestions for new topics to supplement two of the modules of the tailored national operation plan

Feedback data from the training: overall level of satisfaction very high 4.64 out of 5 with strong interest in data exchange, capacity building on marine pollution management activities, exercises and transborder emergency response and pollution prevention activities.

2.2 The advanced training course in Georgia

Training workshop in Georgia

Place: Batumi, Georgia – hosted in hybrid format, at Horizon Office of Batumi Shota Rustaveli State University / BSU.

Date: 22.09.2025

Attendance: There was 24 total registrants (Georgia 12, Moldova 5, Greece 4, Romania 2, Turkey 1), while actual participants were 26 total, 18 in person (3 international), 8 online (7 international). The audience included Georgian and international academic experts, project partners, students, and practitioners concerned with Black Sea plastic pollution monitoring.

Implemented by: GMG/FoE-GE, in coordination with Batumi Shota Rustaveli State University / CARE SEA-related local support, and with invited expert contributions from RESPONSE / partner institutions.

Event focus: National training workshop on microplastic / macroplastic monitoring in coastal and freshwater environments

The core reporting event treated here is the Georgian national training activity held on in Batumi, centred on micro- and macroplastic monitoring in coastal and freshwater environments.

The report also uses earlier RESPONSE evidence to explain why this training was relevant and how it connects to national needs and previously co-created training logic in Georgia. Batumi Shota Rustaveli State University hosted in hybrid format a hands-on training dedicated to micro and macro marine litter monitoring, jointly organised by the EMFAF RESPONSE and the Interreg CARE SEA projects.

The event brought together international experts, local stakeholders, and students. A strong emphasis was placed on interactive learning: students represented more than half of all

participants (14 out of 24, i. e. 58%), ensuring active involvement of the next generation of marine specialists.

A hybrid training workshop focused on marine macro- and micro-plastic monitoring was conducted at BSU. Topics included monitoring protocols, field methods, numerical modelling, and regional experiences. Sessions combined theoretical presentations with practical exercises on marine litter assessment methods, fostering cooperation across projects and institutions. This joint RESPONSE–CARE SEA initiative demonstrates how collaboration strengthens regional capacity to address marine pollution challenges in the Black Sea Basin.

On 24 September 2025, participants continued the programme with a practical marine litter cleanup and count activity held on the beach in front of Batumi Shota Rustaveli State University. This exercise gave students and stakeholders hands-on experience in field methodologies for assessing and categorising coastal litter, linking scientific knowledge with community action.

Student leaders and their counterparts were trained and sensitised to combining beach litter cleanup and count methodologies through an online training session held earlier on 11 September 2025, organised by RESPONSE partner GMG/FoE-GE.

A practical cleanup & monitoring session took place at Batumi sites. Participants applied simplified NOAA/OSPAR methodology, conducted sand sampling, and documented macro-litter.

Process overview: co-creation, national operation plans development, modules

The training did not start from zero. It built on the Georgian needs assessment and stakeholder consultations under WP1, the national co-creation workshop held in Batumi on 2025.02.03, and the emerging operational planning logic of WP2 / WP3.

The September 2025 workshop functioned as a practical pilot step under T3.2, translating earlier curriculum discussions into a thematically focused national training activity on plastics monitoring, field methods, modelling, and Georgia-specific evidence.

It also served as a bridge between broad marine-pollution response training design and a concrete priority topic for Georgia: litter and microplastics in marine, coastal, river-mouth, beach, delta, and freshwater-connected environments.

Review of the preparation phase for the training workshop

Workshop coordination included technical arrangements for hybrid participation, online registration, GDPR-oriented participant administration, and translation / communication support.

The registration and connection arrangements were discussed before substantive presentations started, in preparation for successful hybrid delivery, as many trainers were joining online.

The training package have assembled Georgian host inputs together with invited presentations from regional experts on laboratory methods, modelling, field observations, contributed by partners from RESPONSE, Interreg CARE SEA and H2020 DOORS partners' experiences for Georgian waters.

The thematic choice strongly follows needs identified earlier in Georgia: pollution monitoring and control, oil / chemical / plastic pollution awareness, data sharing, and the need to use modern

tools and open data more effectively.

National operation plan for training – main points, process

The following points and processes proved relevant for Georgian training experiences:

- Use targeted short training events to build operational awareness around specific marine pollution themes while a broader national curriculum is still being finalised.
- Combine academic knowledge, field examples, laboratory practice, and modelling / forecasting perspectives instead of relying only on legal or theoretical presentations.
- Link national training to real Georgian and transboundary cases, especially the r. Chorokhi basin, Georgian coastal waters, beach litter, and Black Sea-wide transport processes.
- Use hybrid delivery where useful, but keep strong emphasis on practical, site-based and data-based learning.
- Feed lessons from each thematic training back into the wider RESPONSE curriculum, digital toolkit, and future pilot operation plans.

Modules envisaged in the national training curricula – main topics / titles, summary, comments

Module 1: Black Sea plastic pollution context – definitions, pathways, macroplastics, microplastics, and the emerging relevance of nanoplastics.

Module 2: Field and laboratory methods – sampling design, material processing, laboratory techniques, and limits / possibilities for detecting smaller fractions.

Module 3: Source-to-sea transport and modelling – particle pathways from rivers to sea, hydrodynamic interpretation, and why input data quality matters.

Module 4: Georgian and transboundary case studies – r. Chorokhi system, Georgian coastal waters, wetland habitats, and comparison with western Black Sea evidence.

Module 5: Monitoring strategy, data use, and policy relevance – how scientific findings support adaptive monitoring, waste management, and response planning. Regional policy arrangements guidelines and action plans. Monitoring protocols, forms and data collection apps.

Comment: Although the initial training title referred to micro- and nanoplastics, practical emphasis was broader and strongly relevant to macroplastic / microplastic monitoring, with nanoplastics treated as an emerging specialist topic rather than the sole training focus.

Training workshop objectives, audience and scope

- To strengthen Georgian and partner understanding of plastic pollution monitoring in coastal and freshwater environments relevant to the Black Sea.
- To expose participants to complementary perspectives: laboratory methods, field observations, modelling, documentary / awareness dimensions, and Georgian-water evidence.
- To support the emerging RESPONSE advanced training curriculum with a concrete thematic pilot aligned to Georgian stakeholder needs.
- Target audience included university staff and students, marine / environmental researchers, NGOs, practitioners, and representatives of institutions concerned with marine and coastal pollution management.
- The scope was narrower than the full future RESPONSE curriculum, but deep enough to test training relevance, stakeholder engagement, and the value of multidisciplinary delivery.

Training workshop proceedings: invitation, agenda, modules variety / areas

Invitation, registration and attendance records, final agenda, trainer presentations, marine litter monitoring forms, as well as meeting photos and zoom recording are provided as meeting files.

The agenda included: technical opening and registration; introductory remarks and project / host framing; a set of expert presentations; question-and-answer exchanges; and closing / next-step discussion.

Module variety covered laboratory / analytical methods, modelling of particle transport, Turkish and Georgian case examples, documentary / awareness dimensions, broader Black Sea cooperation, as well as the RESPONSE Toolkit demo video presented to participants.

The event met the template expectation of multi-area modular training even if it was organised as a compact thematic workshop rather than a long course.

Review of the proceedings at the training

Opening: Introductions, technical setup, registration, and clarification of presentation sequence.

Lecture block 1: Presentation by Bogdan Gheorghe of DDNI Romania (online) on laboratory techniques and field methods regarding microplastics.

Lecture block 2: Presentation by Antigoni Zafeirakou, AUTH Greece (online) on numerical modelling of plastic particle transport, illustrated through the Thermicos Gulf case and linked discussion on transferability to Black Sea conditions.

Lecture block 3: Discussion involving Turkish-Georgian observations (including data near the Georgian border) and source-to-sea interpretation of river-borne particles, presented by Kadir Seyhan of KTU (Trabzon, Turkey) and Izolda Matchutadze of BSU (Batumi, Georgia)

Lecture block 4: Presentation by Iulian Pojar, GeoEcoMar, DOORS Project (online) on methodologies and results of monitoring microplastics in Georgian marine/coastal waters, including concentration, type / polymer observations, and implications for adaptive monitoring.

Lecture block 5: Coastal clean-up and beach macro-litter monitoring methodologies and forms were presented by Mamuka Gvilava, GMG / FoE – Georgia RESPONSE partner (Tbilisi, Georgia). These approaches were used to conduct combined clean-up action and beach litter count performed by BSU students on 2025.09.24 and devoted to World Cleanup Day.

Lecture block 6: The same trainer introduced project and demonstrated RESPONSE Toolkit video.

Discussion: Exchange on the need for better data, regional cooperation, awareness raising, and follow-up contributions to future events and materials.

Other material: The training relied on PowerPoint presentations and expert oral inputs; the materials include agenda, invitation, attendance records, selected photos, zoom recording, all presentations that will contribute to RESPONSE Toolkit with training curriculum and training materials.

Stakeholders' responses

Participants showed strong interest in regionally comparable evidence rather than isolated local

observations.

There was clear interest in linking riverine inputs, coastal accumulation, and modelling results.

Discussion suggested appreciation for combining practical monitoring themes with wider Black Sea environmental context and cooperation needs.

The exchange showed that stakeholders value training that can feed into future project meetings, collaborative studies, and curriculum development rather than stand alone as a one-off seminar.

Points raised, suggestions

Need to continue collecting comparable data from Georgian and partner-country rivers and coastal areas.

Need for stronger integration between field observations, laboratory analysis, and modelling.

Need to adapt monitoring strategies to site-specific conditions in Georgian waters.

Need for longer-term strategies and improved waste management responses alongside monitoring.

Need for continued regional cooperation and data exchange across Black Sea countries.

Issues and comments

Hybrid participation and multilingual communication required active facilitation.

Nanoplastics were recognised as important but technically demanding; current capacity may be stronger for microplastics than for nanoplastics analysis.

Chorokhi mouth field monitoring was initially planned, but could not be performed due to logistical constraints of Turkish guest lecturer due to time needed for border crossing and travel to Trabzon.

Interactive process described

The process was interactive based on discussion after presentations rather than a formal surveys.

Participants and speakers compared experiences from Georgia, Romania, Türkiye, and Greece, and discussed how field data can support modelling and wider understanding of pollution pathways.

New topics implicitly added through discussion included video documentary communication / awareness, transboundary river cooperation, and the practical limits of nanoplastics analysis.

The workshop also helped clarify where future RESPONSE digital toolkit elements could be useful: data interpretation, monitoring guidance, and case-based teaching materials.

Feedback from the workshop

Qualitative review of comments suggests three dominant themes: practical relevance of the topic;

need for cross-border learning; and need for stronger monitoring-to-management linkage.

Workshop summary

The Georgian pilot training on 2025.09.22 successfully translated RESPONSE curriculum development into a concrete thematic training event focused on plastics monitoring and cleanup count on 2025.09. It demonstrated the value of combining academic, technical, & applied perspectives within one compact workshop and one field work event.

It also confirmed that plastic pollution is an appropriate operational entry point for wider marine pollution preparedness and response capacity-building in Georgia.

How the workshop addressed existing training needs and monitoring challenges

It directly addressed needs previously identified in Georgia for better marine pollution monitoring, data sharing, and use of modern analytical / interpretive tools.

It complemented other pollution response training by focusing on an under-served but increasingly important pollution area: plastic litter and microplastics.

It brought together scientific knowledge, operational relevance, and regional examples, which is consistent with the multi-stakeholder approach proposed in RESPONSE.

It helped move from abstract curriculum planning toward real testable training content.

Training materials provided

PowerPoint presentations from invited speakers and Georgian hosts.

Expert oral presentations and question-and-answer discussion.

Workshop registration and GDPR administration materials.

Photos and host publicity materials from BSU / GMG/FoE-GE social-media or event documentation.

For the final zip: invitation, agenda, sign-in sheets, presentation PDFs / PPTX, photo selection, and summary notes as well as zoom recording of entire event.

Stakeholder recommendations, suggestions

Continue training on plastics with stronger linkage to Black Sea-wide monitoring and modelling.

Maintain practical orientation and use real regional datasets / case studies.

Strengthen cooperation among Georgian institutions and between Georgian and regional experts.

Use the workshop outputs as building blocks in the broader RESPONSE curriculum and future digital toolkit.

Principal outcomes

A delivered national pilot training event under T3.2, focused on a highly relevant pollution theme. Improved awareness of Black Sea plastic pollution sources, methods, and transboundary dynamics. Useful evidence for refining RESPONSE training content toward practical and data-driven formats. Strengthened basis for future Georgian and regional collaboration on monitoring and response-related training.

Monitoring and evaluation process

The Georgian national pilot training was monitored through participant registration records, attendance tracking for both in-person and online participants, observation of the interactive discussion process, and review of the training materials and follow-up exchanges. The workshop gathered 26 actual participants in total, including 18 in person and 8 online, with a strong representation of students, university staff, researchers, project partners, and environmental practitioners concerned with marine pollution monitoring in the Black Sea context. The event therefore contributed to the RESPONSE objective of increasing the number of stakeholders engaged in training and operational activities, while also testing how a thematic pilot workshop can support the wider advanced training curriculum under Task 3.2.

From a monitoring and evaluation perspective, the Georgian workshop demonstrated a documented open and participatory process for the set-up and operation of a national pilot training activity. The training built on the earlier co-creation phase and responded to needs already identified in Georgia for improved marine pollution monitoring, data sharing, and the use of modern methods and tools. Participant reactions and discussion showed high relevance of the selected topic and clear interest in strengthening links between field monitoring, laboratory methods, modelling, and management responses. The workshop also generated practical suggestions for future refinement of the RESPONSE training offer in Georgia, especially through stronger use of Georgian case studies, site-specific monitoring approaches, and continued regional cooperation and exchange.

2.3 The advanced training course in Romania

The pilot training session in Romania was held in early March at the NIMRD headquarters in Constanța and brought together stakeholders from the maritime, academic, NGO, and government sectors.

Training workshop in Romania

Place: National Institute for Marine Research and Development "Grigore Antipa", Constanta, Romania

Date: 3 March 2026

Attendance: The following institutions were represented: Grigore Antipa National Institute of Marine Research and Development (NIMRD), Dobrogea-Litoral Water Basin Administration, Maritime University of Constanța, Ovidius University of Constanța, National Maritime Ports Administration Company SA Constanța, Mare Nostrum NGO, Oceanic Club NGO, CERONAV – Romanian Centre

for the Training and Professional Development of Naval Transport Personnel, Mircea cel Bătrân Naval Academy, Ministry of Internal Affairs – General Inspectorate of Border Police – Coast Guard, Romanian Naval Authority, Romanian Agency for the Safety of Human Life at Sea – ARSVOM.

The total number of participants – 28. Professional affiliations of participants by category: local technical staff, water administration, SAR and naval authorities, naval academia, maritime trainers, scientific centers, environmental NGOs.

Implemented by: National Institute for Marine Research and Development “Grigore Antipa”.

Process of preparation overview

The key stakeholders identified during the RESPONSE process were involved in the training process and in selecting the materials and advanced training courses of four module/courses and national operation plans development.

The training continues the needs assessment and stakeholder consultations under WP1 and 2, the national co-creation workshop held in NIMRD Constanta on 2025.01.27, followed by the correspondent regional workshop on 2025.02.24-25, followed by the emerging operational planning of WP2 / WP3.

The choice of topics closely follows the previously identified needs in Romania: response and monitoring of oil pollution, modern methods for particle tracking, satellite observations for identification and monitoring of oil spills, hydrodynamic modelling services, rehabilitation post-incident and access to open-source data and information.

The following points and processes proved relevant for Romanian training experiences, encompassing short training events to build operational awareness around specific marine pollution research experience, field examples, laboratory practice, modelling and forecasting presentations, composed from RESPONSE curriculum, digital toolkit, and future pilot operation plans. Modules envisaged in the national training curricula:

Module 1: Sources and impacts of Marine Pollution – general presentation.

Module 2: Monitoring of Marine Pollution and Accidental Pollutions – MSFD implementation, data and technologies relevance. Monitoring protocols, forms, cases methods, sampling design, material processing, in-situ/laboratory techniques, and limits / possibilities for modern instruments.

Module 3: Emergency Preparedness and Response - the case of Accidental Oil Spills – including Romanian Contingency Plan, modelling exercise on particle tracking in the sea, hydrodynamic interpretation, and location's sources issues.

Module 4: Rehabilitation after marine pollution incident, Romanian and transboundary case studies.

An extensive presentation of the RESPONSE Toolkit, including guidance of participant through process of registration, access and modules' selection according with specific exemplified need, followed the four modules and started the discussions session.

Training workshop objectives, audience and scope

The objectives were identified through a co-creation process and are aimed at improving the understanding of stakeholders in the Romanian Black Sea region regarding methods for monitoring oil pollution in coastal environments. The objectives include the following:

- Familiarizing participants with modern methods of marine pollution monitoring, such as satellite data, CMEMS, forecast models, and particle tracking.
- Integrate the Marine Strategy Framework Directive (MSFD) and the descriptors associated with various types of pollution.
- Support the RESPONSE advanced training program in its early stages through a concrete, tailored thematic pilot project for stakeholders in Romania;
- Ensuring access to and encouraging the use of the RESPONSE toolkit as a resource for various stakeholders in the maritime sector.
- Testing the relevance of training and stakeholder engagement and collecting feedback on the structure of the toolkit

The workshop audience consisted of key stakeholders from the coastal area, with relatively balanced representation from different fields of activity.

- During the preparation of the training course, stakeholders who had previously participated in co-creation workshops at national and regional levels were invited to take part. The following groups participated:
- Representatives of institutions involved in maritime search and rescue operations and emergency response;
- Representatives of the maritime administration and NGOs interested in modern monitoring methods, modelling and forecasting platforms, and the use of the online platform and project tools;
- Representatives of educational institutions and the academic community in the maritime sector, as well as other maritime professionals interested in extracurricular programmes and studies, module combinations and the online platform and project tools.
- Target participants included representatives of emergency response agencies, followed by representatives of the naval administration and the coast guard.

The advanced training course covers a wide range of topics, including the types, sources and impacts of marine pollution (with a focus on oil spills and pollution resulting from armed conflict), methods for monitoring marine pollution (ranging from routine monitoring to emergency situations), and the use of digital and innovative tools for monitoring, preparedness and response to emergency situations. The course also covers the national and European legislative framework, the national contingency plan, operational tools, case studies and remediation methods.

The advanced training course was linked to four general areas of the selected topics:

- Types, sources, and impacts of marine pollution;
- Monitoring of marine environmental pollution and accidental pollution;
- Emergency Preparedness and Response
- Rehabilitations post-emergencies events

The RESPONSE Toolkit and the implementation guide were introduced. The event files include the invitation, registration and attendance records, the final agenda, the trainers' presentations, the survey results and photos from the meeting.

Training workshop proceedings

In mid-February, an invitation to the training course was sent to the institutions and especially to the 32 experts from the aforementioned institutions and agencies who were involved in the previous stages. Of these, 28 participated in the training course entitled 'Organising and Conducting Training Courses in the Field of Marine Pollution Management'. Topics included monitoring of marine environmental pollution, emergency preparedness and response, the international and national legislative framework; the national emergency plan; responses to accidental oil spills; operational tools; case studies; and monitoring and detection of oil spills using satellite technology, as well as recovery following a marine pollution incident.

First group of presentations comprises types, sources, and impact of marine pollution covering plastic, oil and chemical pollution, as well as noise and light pollution, and the effects of pollution on marine ecosystems and human health.

Second group included presentation on monitoring marine environmental pollution and accidental pollution, the process from routine monitoring to response in case of accidental oil spills, the national practices and EU recommendations, monitoring matrices, the MSFD's criteria for monitoring contaminants and acute pollution, tools and data sharing.

The third group of presentations included the emergency preparedness and response, the international and national legislative framework, the national contingency plan, response to accidental oil spills, operational tools, case studies, the monitoring and detection of oil spills using satellite technology, numerical modelling, early warning systems (EWS) and support services developed by NIMRD in collaboration with ESA and CMEMS.

The fourth presentation group addressed issues related to recovery from marine pollution incidents, marine pollution clean-up operations, including relevant national and international legislation and EU regulations, as well as examples of a clean-up protocol following an incident.

Digital Toolkit demo video was presented to the audience and discussed by the participants.

Interactive discussion followed and feedback was provided by the participants.

Stakeholders' responses

The responses of participants were related to certain specific examples, encompassing the difficulties of implementations of the specific law's related to Marine Pollution at national level, and Rehabilitations post-emergencies events, but also related to specific subjects of training toolbox, specific suggestions. The difficulty of application of polluter pay principle was emphasised through concrete examples, as well as rehabilitation after two shipwrecks in adjacent areas of Constanta Port.

Points raised, suggestions

The suggestions were related to the theoretical support, as a text materials, wait papers or as a short note for orientation in the field of Marine Pollution themes approached by the training courses' themes, especially for operational instruments, such as satellite detection (SAR) the aerial surveillance, the GIS and modelling EWS related to Copernicus / EMSA services.

Issues and comments

The operational tools, and especially the near real-time tools, require specific expertise and coordination, and the assimilation of technologies require specially designed training courses, and in this regard the orientation for self-designed training, using the Response-toolbox should be materialized on specific support notes/wait papers and courses.

Workshop summary

During the meeting, topics developed by the INCDM 'Grigore Antipa' in collaboration with partners from the RESPONSE project consortium were presented for training purposes. In accordance with the agenda, four training modules were conducted in the field of marine pollution management: presentation of the sources, types and impact of marine pollution; monitoring; and preparedness and rapid response to accidental marine pollution, including that generated by military operations.

During the training module on 'Emergency Preparedness and Response to Marine Pollution', a demonstration was given for the use case of the oil spill trajectories forecasting capabilities developed within the Syroco-2025 project, which is currently underway at the INCDM 'Grigore Antipa' with funding from CMEMS.

The event also provided opportunities for networking, dialogue and collaboration beyond the training framework of the tools developed within the project.

The objective was to develop and test innovative training programmes for monitoring and managing marine pollution, with a focus on pollution generated by conflicts. Supporting materials include educational and training schemes for combating marine pollution, as well as a digital toolbox featuring modern training and response tools and decision-making support for managing marine pollution incidents.

Monitoring and evaluation process

The process was done on ArcGIS platform provided with generosity by GMG/FoE-GE, Georgian Partner, thus benefiting by its rapid evaluation and on event's time.

Feedback from the workshop

The feedback collected from participants following the National Workshop organised within the RESPONSE project framework confirms a high level of satisfaction regarding the relevance, quality, and practical applicability of the training content delivered during the event. An analysis of the comments and ideas is presented in Appendix 1. The average rating for the event (based on online feedback) is 4.64 out of 5, which is considered a good result. Of the 28 participants, 11 provided feedback both online and during informal discussions.

Overall, participants assessed the event positively across all evaluation dimensions, with most responses concentrated in the upper scoring categories (4 = High / Agree and 5 = Very High / Strongly Agree).

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Overall, the participants assessed the event positively across all evaluation dimensions, with most responses concentrated in the upper scoring categories (4 = High / Agree and 5 = Very High / Strongly Agree).

Suggestions for improvement focused on expanding specific topics, introducing additional examples of best practices, delving deeper into innovative sections, and presenting biodegradable solutions and technological alternatives. The feedback suggests interest in expanding on the technical and innovative components in future editions.

Overall Conclusion

The feedback confirms that the national workshop successfully contributed to:

- strengthening stakeholder knowledge in marine pollution management.
- improving awareness of practical response measures.
- promoting the RESPONSE methodological instruments.
- supporting dialogue between relevant institutional actors.

The evaluation results indicate that similar stakeholder-oriented training activities should be continued in future project implementation phases.

Training materials and documents are described in the Annex I.

2.4. The advanced training course in Ukraine

The pilot training in Ukraine was prepared and held in February 2026 with participation of key stakeholders previously involved in the co-creation processes including policy-makers, local authorities (state ecological inspections and sea-ports-authorities), research institutes, higher education institutions, maritime academies, environmental NGOs and other experts.

Training workshop in Ukraine

Place: Odesa, Ukraine, Scientific-Council Conference Hall of the State Organization «Institute of Market and Economic & Ecological Research of the National Academy of Sciences of Ukraine»

Date: 27 February 2026

Attendance: Total number of participants – 46 persons, key-stakeholders attending in person and on-line, from the following organizations: State Organization «Institute of Market and Economic & Ecological Research of the National Academy of Sciences of Ukraine» (SO IMEER NASU); Black Sea Branch of Ukrainian Environmental Academy of Sciences (BSBUEAS); Black Sea Commission Permanent Secretariat; State Institution "Institute of Marine Biology of the National Academy of Sciences of Ukraine"; Kherson State Maritime Academy; Ukrainian scientific center of Ecology of Sea; State enterprise "Ukrainian Sea Ports Authority"; State Agency of Water Resources of Ukraine; Odessa Regional State Administration, Department of the Ecology; State Environmental Inspectorate of the South-western District; Odesa District Council; Black Sea NGO Network – BSNN (Bulgaria - online); Beykent University, Istanbul, Turkey (Turkey - online); Laboratory of the Department of Maritime, Customs and Information Law, Odesa National University of Law (online); Izmail State Humanitarian University(online); State university of intelligent technologies and telecommunications.

Professional affiliations of the participants by category: authorities, policy and decision makers - 11%, research institutes (56%), academia -13%, NGOs, and experts from other EU projects - 17,4%. A total of 30 participants provided feedback taking part in the evaluation process.

Implemented by:

State Organization «Institute of Market and Economic & Ecological Research of the National Academy of Sciences of Ukraine» (SO IMEER NASU) in cooperation with Black Sea Branch of Ukrainian Environmental Academy of Sciences (BSBUEAS).

Description: The pilot training entitled «*Organisation and Implementation of Training Courses on Marine Pollution Management including Pollution Caused by Military Aggression*» was held within the framework of RESPONSE and was co-organized by the two Ukrainian project partners.

Key points of the event:

- Presentation of the RESPONSE enhanced training programmes for monitoring, reporting, management and mitigation of marine pollution under challenges of war
- Discussion on the top training issues of the Ukrainian curriculum (local geographical peculiarities, types and sources of the pollution, war pollution influence on Black Sea ecosystems, institutional frameworks and governance mechanisms for responding to marine pollution in the Ukrainian part of the Black Sea region, development of research infrastructures and networking in the sphere of detecting and assessing pollution of the marine ecosystems)
- Presentation of the structure of the training curriculum aimed at preparing professionals to respond to environmental emergencies in the marine ecosystems, considering Ukrainian peculiarities and military pollution aspects
- Presentation of the Digital-Toolkit, demonstration of the study-materials (presentations) prepared by the Ukrainian Project Partners
- Assessment of the Digital-Toolkit user-friendliness, evaluation of the training process by the stakeholders
- Networking and discussion on the prospects for future cooperation and sustainable use of the enhanced training programmes. Communication on details for the providing of the trainings with the use of the stakeholders' study facilities and on the certification of the study results (SO IMEER NASU in cooperation with State enterprise "Ukrainian Sea Ports Authority" and Kherson State Maritime Academy).

Process of preparation

The training event preparation followed the project methodology of the training process from set up to operational readiness and organizing the actual training:

- key stakeholders were involved in the co-creation, the design of the tailored operational plan and the pilot training were reviewed;
- the tailored national operational plan served as basis of the pilot training
- the main training challenges have been identified to be addressed in the training process

Review of the preparation phase

The preparation phase of the training workshop in Ukraine required extensive coordination, addressing both organizational and security considerations in the context of ongoing war. This process included technical tasks such as distributing invitations, confirming participation, and

managing participants' data in full compliance with GDPR standards and national data protection regulations. Emphasis was placed on maintaining secure communication channels and ensuring flexible participation formats (including online) caused by the military situation in Ukraine.

The selection of training topics was carefully tailored to Ukraine's specific needs and emerging challenges, especially those related to heightened environmental risks during armed conflicts.

Key focus areas included: monitoring and responding to the impacts of military activities on Black Sea ecosystems, as well as addressing oil pollution incidents, particularly those resulting from damage to critical infrastructure such as ports, fuel storage facilities, sunflower-oil terminals, and pipelines.

Furthermore, the training agenda incorporated modern tools and methodologies, involvement of the research infrastructures that are essential for effective environmental monitoring under constrained conditions, considering the stakeholders' recommendations.

Special emphasis was placed on post-incident environmental rehabilitation, reflecting the growing need to address long-term ecological damage caused by both accidental pollution and conflict-related impacts. In addition, the training covered access to open-source environmental data and information systems, which is particularly important in situations where direct field monitoring may be limited due to security constraints.

Overall, the preparation phase was designed to ensure that the workshop content is highly relevant to the Ukrainian context, combining technical expertise with practical solutions tailored to the realities of environmental management during armed conflict.

National operational plan for training

The following points and processes proved relevant for the trainings implementation in Ukraine, encompassing short training events to build operational awareness around specific marine pollution issues and research experience (especially military caused, oil-spills and chemical pollutions), practical measures and mitigation trainings, monitoring practices, studies for volunteers, involvement of the research infrastructures, composed from RESPONSE curriculum, digital toolkit, and future pilot operation plans.

Modules envisaged in the national training curricula

The key 8 modules (4 per each Ukrainian Partner) from the total number of 19 for Ukraine were identified as the most meaningful, urgent and with the highest topicality, namely:

Module №1. Introduction to the issues of research into pollution of marine ecosystems;

Module №2. Geography and characteristics of the Black Sea, pollution and its impact on marine ecosystems;

Module №3. Types and sources of pollution, the impact of pollution on the state of the ecosystems of the Black Sea Basin (BSB);

Module №6. Pollution Monitoring and Assessment;

Module №7. Oil Spill Response Training Program: Ecosystem and Biodiversity Protection Focus

Module № 8. Oil Spill Response Training for Volunteers: Ecosystem and Biodiversity Protection

Module №13. Specialized Training Curriculum: Marine Pollution Response During Armed Conflicts.

Special Module. Response preparedness presentation on extraordinary situations: basic guidelines for volunteers in the context of man-made disasters caused by the war.

The advanced trainings include 4 (four) modules per each Ukrainian partner to be provided addressing specific needs of the audience. SO IMEER NASU together with BSB UEAS managed to provide training courses (with duration of one day) that include 8 (4+4 relevant modules). The list of all modules and curricula relevant for Ukraine is available in the Annex I.

Training workshop objectives, audience, and scope

- To enhance the understanding of stakeholders of the effective approaches to emergency response to marine ecosystem pollution, particularly under conditions of increased environmental risks related to ongoing military activities.
- To familiarize participants with modern methods and tools for marine pollution monitoring, considering martial law restrictions for observations, abilities of the research infrastructures, estimation of consequences of military actions, oil-spills and other disasters' influence on marine ecosystems.
- To involve policy-makers, authorities, administrations, researchers, universities, practitioners, professionals and volunteers in the training activities with advanced curricula
- To strengthen the capabilities of the key stakeholders in emergency response to pollution caused by armed conflicts.
- To support the development and implementation of the RESPONSE advanced training programme through a tailored approach designed for stakeholders in Ukraine, reflecting national priorities and current military challenges
- To provide access to and encourage the use of the RESPONSE Digital Toolkit as a practical resource for stakeholders in the maritime, environmental, and emergency response sectors in Ukraine.
- To test the relevance and applicability of the training content and stakeholder engagement approach in the Ukrainian context, as well as to collect feedback for further improvement of the Toolkit structure and training methodologies, ensuring their adaptability to both national and Black Sea Basin regional needs.

The target audience of the pilots includes 5 main groups of the stakeholders

- 1) policy- and decision-makers (prefer short-term trainings with emphasize on institutional and policy aspects)
- 2) authorities and professionals (1-2 days duration trainings with emphasize on practical aspects and case studies)
- 3) research institutions (extracurricular training with emphasize on monitoring, analysis and other scientific methods)
- 4) universities (extracurricular, long-time duration training, up to semester or year, distance learning tools, use the Response digital tool)
- 5) NGOs and volunteers (1-day, short trainings with emphasize on case studies and life safety under

armed conflicts pollution influence)

The scope of topics for the advanced training includes: environmental risks during armed conflict; monitoring and responding to the impacts of military activities on Black Sea ecosystems; local geographical peculiarities and types and sources of pollution; pollution incidents, resulting from damage to critical infrastructure such as ports, fuel storage facilities, sunflower-oil terminals and pipelines; modern tools and methodologies, involvement of the research infrastructures; effective environmental monitoring; institutional and policy aspects; response preparedness to emergencies; basic guidelines for volunteers in the context of the war; post-incident environmental rehabilitation; access to open-source environmental data and information systems.

Training workshop proceedings: invitation, agenda, modules variety / areas

The event documentation includes the official invitation, participant registration and attendance records, the final agenda, presentations delivered by trainers and experts, results of participant feedback surveys, as well as photographic and video materials from the event (Annex I). The invitation for the training was sent to over 70 representatives of stakeholders, 46 attended the event.

The presentations covered topics particularly related to marine military and oil pollution, such as the sources, types and impacts of marine pollution, monitoring of marine pollution, emergency preparedness and response, and post-incident rehabilitation measures. Special emphasis was placed on volunteers training and activities and on the interaction of research institutions with inspectorates and state authorities with legal responsibilities and relevant capacities to provide emergency response to pollution from armed conflicts.

Review of the proceedings at the training

The **training structure** ensured both engagement with lectures and demonstrations and interactive components. The **training course** featured a demonstration of the RESPONSE Toolkit digital tools, accompanied by a detailed explanation of the access algorithms and its functional capabilities for marine environment monitoring. The workshop format included active facilitation of discussions, allowing participants to move beyond theoretical foundations and practical cases. Based on the discussion results, participants expressed particular interest in the presented solutions, while emphasizing the need to develop more extensive training materials. Specifically, emphasis was placed on the necessity of developing specialized response strategies for pollution caused by the destruction of port infrastructure (oil and sunflower-oil terminals), shipwrecks in combat zones, and the impact of marine mine hazards on the ecosystem and the security of the maritime transport business environment. Also, the aspects of the training results certification were highlighted in the comments of the Ukrainian stakeholders.

The discussion addressed key issues related to **marine war-related and oil pollution in the Black Sea region**, with particular emphasis on the Ukrainian context. Topics covered included the sources, types, and environmental impacts of marine pollution, modern approaches to monitoring (including remote sensing tools), emergency preparedness, and response under conditions of increased environmental risk, as well as post-incident environmental rehabilitation. Special attention was given to challenges associated with **damage to critical infrastructure and restricted access to affected areas due to ongoing military activities** and to the activities of the volunteers.

The event successfully met the expectations of the organizers and participants, providing valuable

insights into the need for a **flexible, modular, and multidisciplinary training framework** tailored to the specific conditions of the Black Sea region and Ukraine in particular, including **the war influence** conditions. The feedback collected from participants confirmed the relevance of the training content and highlighted the importance of further development and upscaling of the RESPONSE training approach.

Topics of the pilot training involved the RESPONSE outputs, legal and institutional framework of project issues, types of marine pollution, sources and impact of pollution, key research challenges of the state of marine ecosystems and their rehabilitation, exercises on emergency response to oil (and sunflower oil) spill pollution as a result of military aggression.

Discussion:

Stakeholders' responses

- The responses demonstrate very positive attitudes of the participants, high relevance and practical value of the RESPONSE project material
- High level of the relevance, quality, and practical applicability of the training content
- High relevance and practical applicability of the developed guidelines in the context of wartime-related environmental risks
- Thoroughness of the training materials, clear structure, and suitability as a baseline tool for volunteer coordination and field response. Strong integration of scientific approaches, which enhance the quality and credibility of the curricula
- Specific examples, encompassing the implementations of the specific law's related to Marine Pollution at national level, and Rehabilitations post-emergencies events
- The Digital Toolkit was described as very interesting and user friendly.

Participants also stressed on the importance of linking response actions to sensitive habitat protection and minimization of long-term impacts of pollution through early prioritization and documentation. The discussion underscored that biodiversity protection should be mainstreamed into response planning and execution, rather than approached as a follow-on activity once containment and clean-up are completed.

Points raised, suggestions

- More specific examples, encompassing the implementations of the specific laws related to Marine Pollution at national level
- More case studies (specific training toolbox on military disasters pollution reaction and on rehabilitations as post-emergencies means
- The biodiversity protection should be mainstreamed into response planning and execution, rather than approached as a follow-on activity once containment and clean-up are completed
- More region-specific scenarios and structured decision-support prompts to help practitioners turn

observations into prioritized actions

- To highlight the clearer coordination interfaces between port authorities, environmental inspectorates, emergency services, and scientific partners
- The repository of case studies and comprehensive data-hub should be established, in order to support the replication and learning
- Centralizing of the collection of citizen monitoring data through a responsible authority
- More new topics should be developed on the trainees' request (e. g. the relevance of international protocols, their use at the national level, and the limitations imposed by martial law)
- Suggestions for certification of the training results, involving of researchers in cooperation with practitioners for better training process
- Implementation of specialized research infrastructures into the monitoring, research and quick response processes
- Topics for long-term cooperation among key stakeholders
- The increasing number of sources of marine pollution requires updating the operational procedures of special services, as well as considering their impact on biodiversity, monitoring the consequences, and addressing them
- The environmental target audience emphasized the gaps in research/knowledge of the impact of war pollution on marine biodiversity in the long term
- Highlights on access restrictions (e. g. damaged infrastructure) and safety risks, clear volunteer role boundaries, stop-work principles, and disciplined reporting
- To review the pollution response practices permitted in individual regions, as well as the quality and makeup of the equipment used to clean up spills and contaminations of various etiologies
- Strengthening the role of the state by introducing mandatory training and granting formal authority to trained individuals
- Providing guidelines for economic valuation and damage assessment
- To use the method of Source-Pathway-Receptor (SPR) model to move beyond point-measurements toward integrated spatial identification of pollution hotspots.
- Stronger accent on monitoring data to meet the requirements of the EU Marine Strategy Framework Directive
- Create an AI-assistant on the Digital Toolbox that would be able to provide recommendations for improving the course module set based on the trainee's uploaded materials and rationale
- Suggestions on the training results certification were highlighted as well

Issues and comments

- The main issue includes war and martial law restrictions, especially for data access, monitoring and dissemination of alarms and best solutions. The limitations imposed on the data collection for the trainings by martial law
- The lack of quantitative assessments, including ecosystem service valuation, cost-effectiveness of response techniques, and justification of active vs. natural recovery
- Security constraints leave little margin for error and increase risks for volunteers
- Many techniques require significant resources, expertise, and coordination, which remain limited in Ukraine
- Real-time tools require stable data, trained personnel, and institutional interoperability, which are not fully ensured

Feedback from the workshop

High level of relevance and high practical value

Positive estimates of the training event most responses in the upper scoring categories (High and Very High).

Results of the very high scoring and feedback presented in detail in Annex I.

Workshop summary

During the meeting, topics developed by SO IMEER NASU and BSBUEAS in collaboration with partners from the #RESPONSE project consortium, with the stakeholders were presented for training purposes, that include 8 training modules (key points/topics), namely:

types and sources of the marine pollution, local geographical peculiarities under war influence on Black Sea ecosystems; sources, classification and impact on marine ecosystems pollution caused by armed conflicts; local geographical peculiarities, types and sources of the pollution in context of war influence on Black Sea ecosystems; institutional frameworks and governance mechanisms for responding to marine pollution in Ukrainian part of the Black Sea region; development of research infrastructures and networking in the sphere of detecting and assessing pollution of marine ecosystems; institutional framework for responding to pollution of the Black Sea; monitoring for pollution in marine ecosystems: research infrastructures role; quick response on pollution and further rehabilitation of marine ecosystems; oil- and chemical spills under the military influence; guidelines for volunteers on response preparedness in disasters caused by the war; case studies and protocols on marine wildlife rescue; networking on co-improving of the training programmes.

Monitoring and evaluation process

23 participants trained as experts; 23 experts were informed of the training process, including regional online participants; networking training materials available

Key stakeholders involved in co-creation, development of tailored national plan, further input for enhancement of the curricula

The participants expressed very high positive estimation of the pilot training event

Comments/quotations/responses from participants

The training workshop directly meets the training needs of the key stakeholders in Ukraine.

The training material provided insights into emergency response issues associated with war pollution and pollution from other sources

The pilot training gathered useful information from stakeholders from Ukraine and provided some answers to the key practical questions and issues.

Stakeholders welcomed the RESPONSE Digital Toolkit and suggested using it for trainings of maritime authorities and inspectorates. They have also suggested future certification of the training results.

The topics for training of volunteers on the emergency response under military conditions were highly appreciated by the stakeholders.

Overall rating of the event in the feedback was very high, close to the maximum score 5.

3. Regional Workshop and the training process

Place: Varna, Bulgaria, hall of golden Tulip Hotel, at No 3A Hristo Botel Blvd.

Date: 5 & 6.03.2026

Attendance: The Regional Training Workshop was attended by 29 participants (26 physical and 3 online) representing the project partners AUTH (Greece), BSNN (Bulgaria), NIMRD (Romania), IMEER NASU and BSB UEAS (Ukraine), GMG/FoE (Georgia), and different authorities and institutions representing key stakeholders: Directorate Maritime Administration – Varna, Directorate General Emergency and Rescue Operations at EA Maritime Administration, Bulgarian Navy, Black Sea Basin Directorate, Institute of Oceanology BAS – Varna, Technical University – Varna with its Environmental Department, Naval Academy Varna, Regional Agency for Entrepreneurship and Innovation, BSCEIE NGO Varna and BSCEIE Dobrich branch, Volunteer Rescue Team at TD Rodni Balkani Varna, BAEST NGO Burgas, Nature Park Strandja Directorate Burgas/Malko Turnovo.

Implemented by: Black Sea NGO Network (BSNN)

Aim of the regional training workshop in Bulgaria

- The aim of the regional workshop is to provide guidance to partners and intensive training on how to operate their training courses, covering the process from the set-up phase over to the implementation of activities and share ideas for improvement of the training elements, sharing lessons learned and ideas for replication of the training.

The 2-day event was an opportunity to bring together the implementation teams of the national training courses and to demonstrate how to organize and conduct training courses within the RESPONSE project and in the future applying the adopted methodology, using project materials and the content available on the Digital Toolkit with support from the Replication Guide.

Workshop review

The preparatory process started at the end of January 2026 after an online webinar and discussion with the partnership. The preparatory steps of the national trainings were discussed to align training content for the regional workshop with the four national training events, each one hosted by one of the Black Sea countries. The open interactive process stimulated additional connections, dialogue and collaboration beyond the consortium.

Ad hoc consultations, webinars and online meeting and discussions have supported the training process and cross-border exchange between members of the consortium. Joint webinars and two or three-partner format discussions, learning moments and consultations were conducted continually during the task implementation period. The networking and collaborative learning process was extended experts and organisations both in and outside the consortium e. g. scientific institutes, academia, the BSC.

The workshop was entitled '*Setting up and Running Training Courses on Marine Pollution Management*' and continued for two days providing a space for training and discussion and a final study trip to the coast with practical exercise.

The workshop commenced with an overview of the RESPONSE project and its achievements and outputs presented by the project manager. The comprehensive account highlighted the role of strengthening marine pollution emergency response preparedness and training at the regional level. Another aspect of the training process, the progress from approving the training methodology to the adoption of the tailored national operation plans and holding of the actual pilot trainings with selected stakeholders was reviewed by the hosting partner organization BSNN. The project networking process was enhanced by a presentation of another CINEA supported regional intervention, the Black Sea SIERRA project, delivered by an expert from the Institute of Oceanology IO BAS – Varna. The presentation highlighted some findings from national-level studies on pollution caused by explosions from armed conflicts and civil activities thus adding new insights to our understanding of the sources of pollution in the Black Sea.

Keynote presentations from the partners focused on topics considered to be significant for the respective Black Sea country stakeholders training. A specific point of interest to all participants was the AUTH team review of the project framework with demonstration of the Digital Toolkit and its functions and options for using standard and creating tailored curricula. As with the national training sessions, the Digital Toolkit attracted particular attention from experts outside the consortium and is expected to play a significant role in the process refining and enhancing the project training outputs.

The various aspects of the training activities were emphasized from RESPONSE team members and experts outside the consortium from the key stakeholder institutions. The partners from GMG/FoE participated online and the expert from Georgia present physically at the workshop gave a detailed account of the training on microplastic / macroplastic monitoring in coastal and freshwater environments. The coordinator of the partner NIMRD, Romania reviewed the training preparation and topics selected to address the training needs of the country audiences. The keynote presentation from the national training focused on the variety of methods and tools for monitoring pollution of the Black Sea.

The partners from Ukraine expectedly provided insights into the situation with emergency response to pollution from armed conflicts on the national level. The coordinator of IMEER NASU presented the results and lessons learned from national level training from military challenges and impacts on the Black Sea ecosystem and communities. Two other team members presented the evolution of research infrastructure for monitoring the state of marine ecosystems impacted by the war conflict and a programme for ecosystem-based biodiversity monitoring in response to oil spills. BSB UEAS coordinator and one of the team experts contributed by introducing the national training programme in Ukraine and important issues of research of the pollution of the marine ecosystem from the national and regional perspective.

The hosting partner BSNN relied on own expertise and experts outside the consortium adding further information insights about national and regional level on types of pollution and monitoring of the marine environment associated with MSFD, vessel pollution accidents in the Bulgarian waters, war time pollution regional issues and national level monitoring, the Vara Su accident report and pollution implications and account of the BSNN experience with citizen science and the Marine Litter Watch (MLW) initiative, coordinated by the European Environment Agency since 2013. This initiative and the evolving monitoring protocols after the 2024 report were the basis for the study trip on the second day of the workshop.

4. Participants Feedback and General Conclusions

During the regional training workshop, partners and stakeholders emphasized the need for modular, practical, and adaptable training and highlighted achievements. Local stakeholders from key stakeholder institutions participated in the discussion and proposed ideas to enhance the project achievements and sustainability. The discussion on the certification of training focused on the peculiarities of the training systems across borders and approved the practical and applicable version of certifying training participation for the experts involved. National trainings content, structure and process from set-up to operational readiness and actual training were reviewed.

The following conclusions from the pilots and workshop proceedings emerged:

- Training content from the partner countries were presented and discussed.
- Scope of trainings has been identified as adequate and comprising in most general terms Black Sea issues, pollution sources and impacts, preparedness, emergency response and society involvement etc. with sufficient depth and detail.
- Modular courses comprising four or more modules in all Black Sea countries cover sufficiently the training needs of audiences in the respective country.
- Modules' content and design of the trainings have been readjusted at pilot trainings.
- Testing in practical terms and refining of the training curricula has been discussed by the consortium.
- Custom-made lectures, online webinars/trainings (especially for partners in Ukraine) and practical exercises, when possible, have supported adequately the training process.
- Integration of scientific and digital tools in the pilot training has been performed and further training on digital innovation and digital monitoring tools is welcome.
- Participants and stakeholders have been familiarized with the training material and tools produced during the project and the RESPONSE Digital Toolkit.

Key takeaways from the discussions

- Stakeholders emphasized on risk assessment and scenarios modelling risks and pollution emergencies to support the national contingency planning and the overall planning process, including on regional Black Sea level
- Stakeholders stressed on the significance of coordination and practical training in joint cross-border exercises at sea.
- Data collection and provision to decision makers and relevant agencies responsible for preparedness and emergencies at sea are considered by stakeholders a very important element of cross-border collaboration
- Stakeholders believe that the provision of data on the state of the marine environment to policy makers should be supported by strong advocacy to alert the responsible authorities to the need to improve environmental governance
- Stakeholders would encourage a regional training-of-trainers on topical issues of common concern related to preparedness and emergency response to marine pollution.

Basic Outcomes

- Pilot trainings cases of the Black Sea partners were reported and the testing of the training curricula was described.
- The discussion of pilots has allowed the partner teams to refine the trainings curricula at the national level.

- Exchange of good practices, information, regional needs of stakeholders and areas for further improvement have been identified and discussed.

Best Practices, Lessons Learned and Refining of the Curricula

Throughout the regional training workshop, best practices, success stories, and innovative approaches were highlighted, fostering collaboration, synergies, and networking among regional stakeholders and at the international level.

Best practices included:

- Following strictly the adopted methodology of the project
- Providing adequate content and training to meet the stakeholder needs
- Establishing strong networking contacts with key stakeholders
- Review and refinement of the curricula to address the needs of stakeholders
- Identify areas for improvement in view of the continually changing circumstances in the littoral countries and the Black Sea region

Lessons learned included:

- **Lessons from Pilot Trainings of Partner Black Sea Countries** – compare partners' achievements, success stories and issues to identify common challenges; suggest solutions to address common challenges – e. g. to provide detailed content for modules, adapt practical training for volunteers to country-specific and region-specific circumstances and issues;
- **Benefits from Networking with Black Sea Regional and EU Projects** – training content will benefit from integration of scientific content from EU Black Sea regional projects such as BRIDGE – BS, DOORS, Black Sea SIERRA, BS-SEOS, NEMO Tools to enhance training on national and regional level
- **Need for Partnerships and Collaboration** with high profile technological and scientific partners to support capacity building on technological monitoring tools and their use for training and decision making on emergency response issues.

5. Achievements and Indicators

The activities comprising Task 3.2 have created **intense interaction** between partners and the regional expert community in the Black Sea basin countries. Those involve four national pilots, a regional two-day workshop, webinars, ad hoc learning moments, online exchange and training with RESPONSE topics and demonstrations of the Digital Toolkit.

The project **achievement indicators** have been achieved with 116 trained experts during the national workshops/pilot trainings (30 in Bulgaria, 12 in Georgia, 28 in Romania, 46 in Ukraine) and 65 informed experts during the regional workshops (29 at the regional workshop in Bulgaria, 12 at the regional training in Georgia, 15 at the first online training with experts from Turkey and Moldova and 9 at the second training with experts from the same two countries with involvement of trainers from the RESPONSE consortium). The training activities have extended to Black Sea countries that are not members of the consortium but share the same pollution and emergency response challenges. The enlarged geographical area and scope of the experts involved and the pilot trainings and workshops have helped *empower the set-up and operation of activities toward effective marine pollution management*.

Further indications related to *stakeholder* collaboration, peer support and further involvement in the professional communities engaged in the training activities some suggestions and tendencies have been identified: suggestions for regional cross-border training-of-trainers on specific topical issues, ideas for joint certification between scientific institute and maritime agency

Training satisfaction and relevance have been rated very highly by stakeholders in the post-event surveys requesting feedback and using different rating systems and grades. Invariably the response was in the range between High and Very High. The assessment process can be further supplemented with individual interviews with participants.

Stakeholders' evaluation and suggestions for refinement of operational plans has been a challenge with some tentative suggestions for specific topics and/or tasks to be emphasized or added to the existing modules of training. Again, the monitoring and evaluation process can be supplemented with personal interviews with stakeholders.

The pilot trainings and the regional workshop bring the project teams and stakeholders closer to the setting up of the advanced and new training scheme and curricula, with tailored training schemes which will be performed, but also updated, on a regular basis for a long period.

The partners can propose improvements to the training curricula and the process of training, share lessons learned and enhance their knowledge of the implementation process and the management of efficient operation of training.

Benefitting from the experience of the four national training courses and the ensuing comments and suggestions, the regional workshop has consolidated the achievements and reviewed the regional training process as well as the perspectives for achieving sustainability.

6. Looking ahead at the Regional Action Plan and the advanced training scheme and curricula

There are real prospects that the pilot trainings and the Digital Toolkit will provide a forum for stimulating mutual learning and knowledge exchange between key stakeholders in the Black Sea Region.

The sustainable functioning of the Toolkit is supported by a practical replication guide, providing know-how and advice on how to build the necessary capabilities and provide guidelines for replicating the RESPONSE processes of co-creating, advancing, updating training courses and curriculum on marine pollution.

In addition, the practices of systematic reviews, identification and acknowledgment of state-of-the-art monitoring and mitigation tools to address future pollution needs and cumulative effects of particular events, such as wars, to the on-going pollution risks. This guide will also benefit from gained experience throughout the interaction and practical feedback from the involved stakeholders.

The final product of the joint co-creation and empowerment process on regional level is the envisaged Regional Action Plan (RAP) of RESPONSE.

The purpose of RAP is to create a common background, a conceptual and co-operational umbrella for all Black Sea coastal countries to:

- (a) ensure that they all have contingency planning and coordination / operation mechanisms,
- (b) support institutional developments for sustainable and long-term joint response training activities,
- (c) integrate a large number of marine pollution sources in the monitoring and management scene, supported under specialized advanced training courses.

The RESPONSE partnership earlier in the project set two strategic goals for the RAP aiming to develop the Black Sea regional cooperation in the field of monitoring and management of marine pollution and to facilitate training, knowledge exchange, and cooperation actions among coastal countries. The two strategic goals approved by the partnership are:

- 1) encourage the regional cooperation and advanced training in monitoring and management of familiar and emerging marine pollution sources, specifically pollution from armed conflicts
- 2) facilitate training, knowledge exchange, and cooperation actions among coastal countries with particular attention to marine pollution incidents resulting from armed conflicts.

The Action Plan will create the circumstances for the establishment of a regional platform and a framework for the exchange of information and expertise on operational, technical, scientific, legal, and financial matters and will promote spaces for dialogue in conducting coordinated action at the national, regional, and global levels for the implementation of the prevention and emergency responses, including those from armed-conflicts.

The networking activities and the involvement of policy-related entities on all levels will support the

co-development and sustainable implementation of the Regional Action Plan activities. To seal the sustainability of these processes, RESPONSE will ensure a continuous interactive process with evaluation and fine-tuning well beyond the project, and the introduction of incentives for further participation and uptake.

A detailed description of the networking activities and their implications for involvement with policy-related entities and scientific networks of excellence in the Black Sea region is described in the deliverable D4.5.

Annex I Pilot trainings and regional workshop

A. Training course in Bulgaria and Varna Regional Workshop in Bulgaria

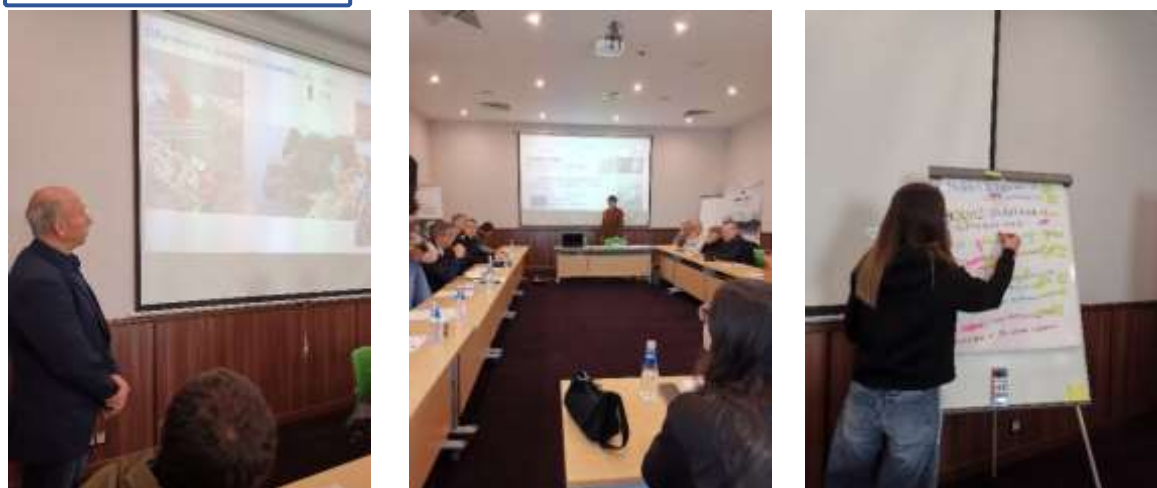
National pilot training in Varna, Bulgaria 11 December 2025

Invitation and agenda for the national pilot training in Bulgaria on 11.12.2025



Pictures from the national pilot training in Bulgaria on 11.12.2025





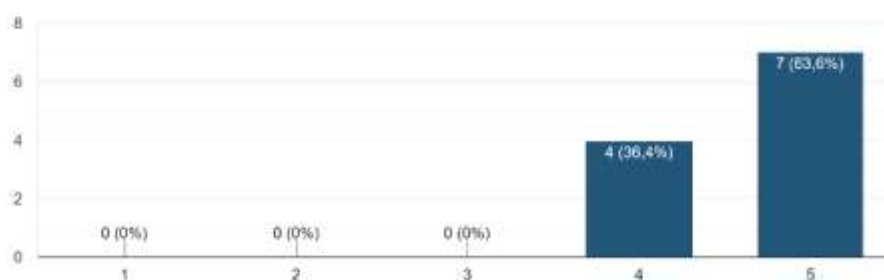
Topics of the pilot training content:

RESPONSE Project overview and outputs, project methodology for planning and conducting training on marine pollution management and training modules; Black Sea pollution types and sources; Types of pollution and monitoring of the marine environment – Assoc. Prof. Daniela Toneva, Head of the Department of Environmental Engineering, Technical University of Varna; Intelligent systems for marine environment monitoring – BRIDGE – BS project – Assoc. Prof. Dr. Nina Dzhebekova, Institute of Oceanology – BAS, Varna; Remote system for water monitoring and analysis – Water Warden Platform– Yavor Dashev, volunteer hydrobiologist; Preparedness and emergency response to marine disasters and accidents – national oil spill emergency plan for the Black Sea and institutions involved; Analysis and conclusions from the “Vera Su” accident; Protecting the Marine Environment from Pollution Caused by Military Operations and the Experience of Ukrainian Partners; Practical training skills to be used in rescue operations and emergencies at sea – Dobri Dobrev, “Rescue Training” course, and volunteer team leader, Civil Protection in Disasters and Accidents , Department of Environmental Protection – Technical University of Varna; Wildlife rescue protocols for dolphins and birds of the the “Green Balkans” Association; Civic Science and Engaging Local Communities in Coastal Cleanup – Mihaela Kozovska, Ecologist; Demonstration video of the RESPONSE Digital Toolkit platform, interactive activities, evaluation of the training.

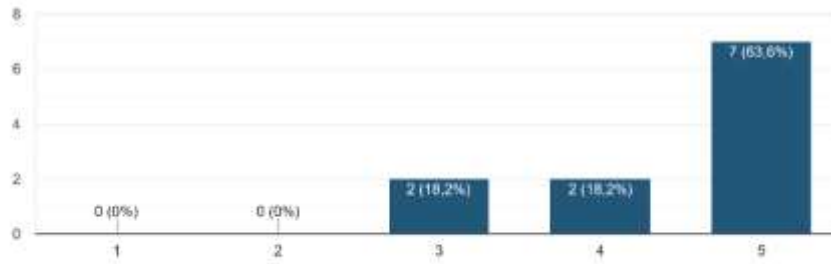
Some Assessment areas of the pilot training from the digital form:

Overall assessment average rating 4.64 out of 5, Relevance to professional interests, Usefulness of project results, Usefulness of project discussion

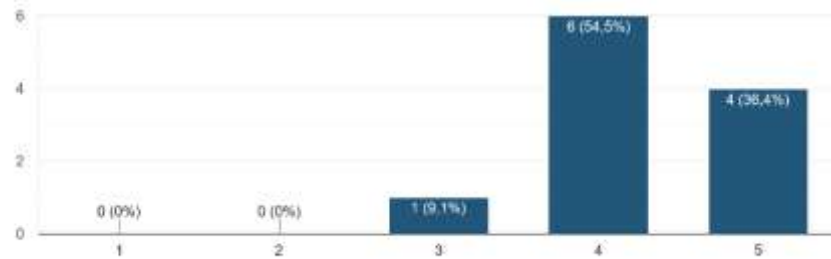
1. Цялостната ми оценка за събитието е
11 отговора



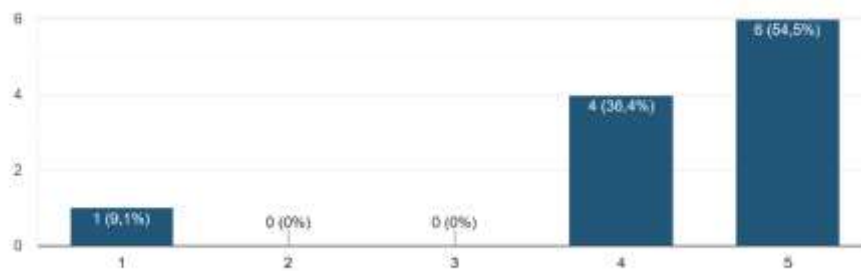
2. Връзката на събитието с професионалните ми интереси е
11 отговора



3. Полезността на представените резултати от проекта е
11 отговора



4. Ползата от дискусиите с представители на различни организации е
11 отговора



Regional Workshop in Varna, Bulgaria 5 – 6 March 2026

Invitation and Agenda for the Regional Workshop

The image displays three documents related to the Regional Workshop in Varna, Bulgaria, held on 5-6 March 2026. The first document is an invitation letter from the Regional Workshop, detailing the purpose of the event and the topics to be discussed. The second document is the agenda for the workshop, listing the topics to be discussed and the speakers. The third document is a continuation of the agenda, listing the topics to be discussed and the speakers.

Pictures from the Regional Workshop in Varna, Bulgaria 5-6 March 2026





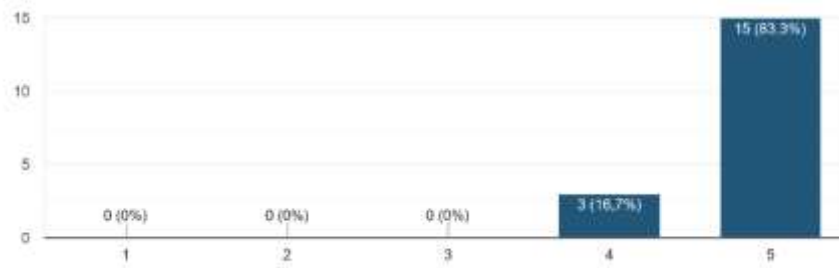
Assessment of the Regional Workshop in Varna 5 – 6 March 2026:

Overall assessment rate is very high 4.83 out of 5

D3.2 REPORT AND MATERIAL OF THE ADVANCED TRAINING COURSES

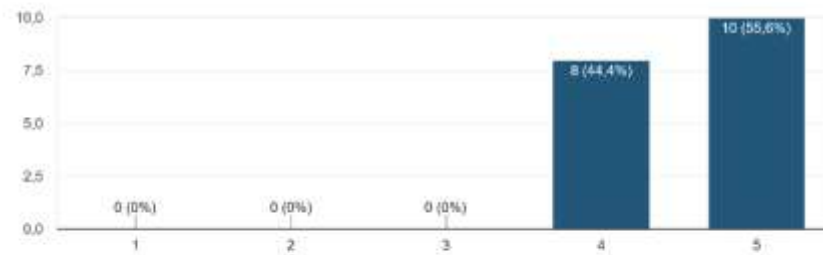
1. Overall assessment of the event

18 απαντήσεις



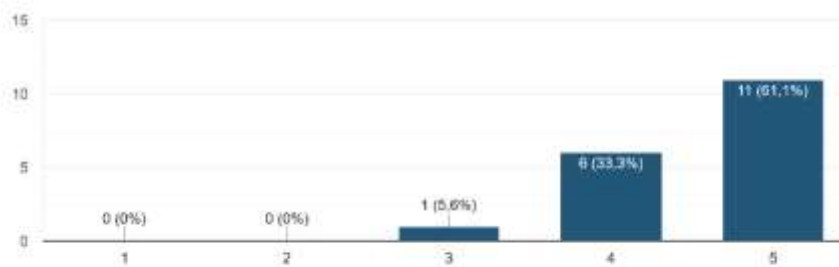
2. The relation of the event to my professional field and work is

18 απαντήσεις



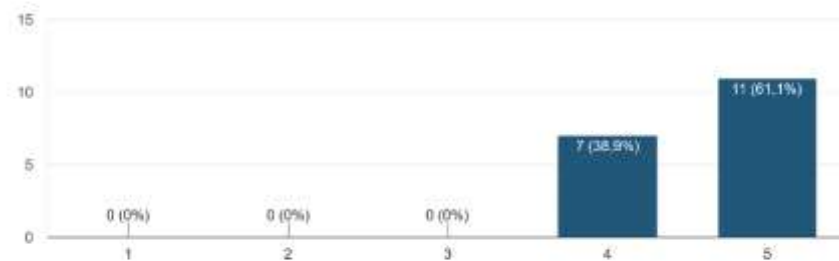
3. The usefulness of the presented project results is

18 απαντήσεις



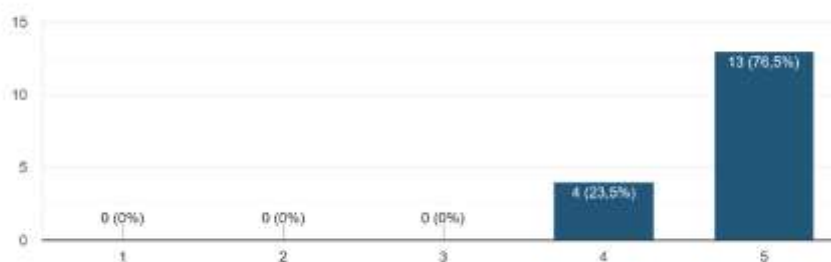
4. The benefit of discussions with representatives of various organizations is

18 απαντήσεις



5. The quality of the discussions and dialogue during the event was

17 отговора



7. What did you like about the workshop? 13 отговора

everything

Professional discussions and sharing of issues on policies

opportunity to discuss the information with different stakeholders

Meeting experts, institutions, partners.

Meeting Bulgarian experts and sharing comments and discussing issues.

Digital tools for training content

Добра организация, ползотворни срещи и дискусии.

Topicality and involving of really actual stakeholders. Paying attention on volunteers marine pollution mitigation activities.

Interesting new topics

Review of the work of partners from other countries.

It covers the most important marine pollution issues and gave the opportunity for discussions.

The participation of qualified specialists

-

8. What could be improved in similar future events? 11 отговора

availability of the parking place

Organize training for trainers event on interesting topical issue

focusing on lessons from practice and analyzing from real operations

Real-life case studies, discussions on them with experts.

Some demonstrations, pictures from joint exercises.

Good examples from real life

To involve more stakeholders

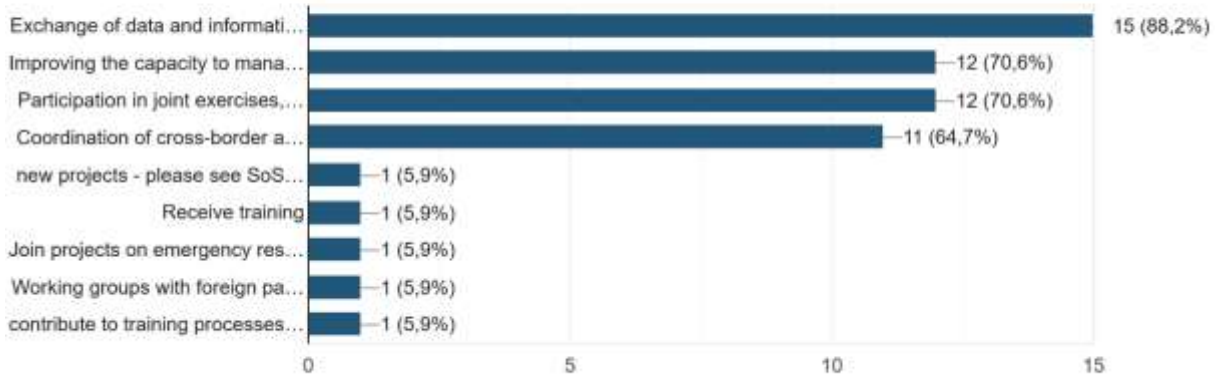
Time for discussion

Meeting specialized personnel, videos of trainings, exercises, operations at sea.

include some practical/field exercise

9. My organization would like to continue supporting cooperation to improve monitoring and management activities for marine pollution in the event of disasters and accidents by

17 отговора



B. Training course in Georgia

Agenda for the training on 22.09.2025 in English and Georgian languages

interreg Co-funded by the European Union
NEXT Black Sea Basin

CARE SEA    

Training Workshop on Micro- and Nanoplastics Monitoring in Coastal and Freshwater Environments
 Organized by Interreg CARE SEA project partners & EMFAP RESPONSE project GMG/FoE-GE

Day 1 – Marine Plastic Monitoring Training Workshop
 Date: Monday, 22 September 2025, 10:30 Georgian Time
 Format: **Hybrid** (in-person and via Zoom), **Zoom** link: <https://us01web.zoom.us/j/99488554801>
 Location: BSU Auditorium #129 in New Campus (Morning) / Chorokhi Riverbank (Afternoon)

Time	Session	Speaker / Facilitator
10:30-11:00	Registration and Welcome Coffee	BSU Coordination Team
11:00-11:10	Opening Remarks, CARE SEA Project	Izolda Matchutadze, BSU CARE SEA Coordinator, Nino Chikhradze, Chair, GMG/FoE-GE, RESPONSE
	Workshop Objectives and Context	
11:10-11:20	Overview of RESPONSE Project and its Toolbox	Mermuka Gelava, RESPONSE Project Manager for GMG/FoE-GE
11:20-11:40	Insights from the Danube Delta – Laboratory Techniques and Field Methods	Cristina Despina, DDRI Romania (online)
11:40-12:00	Numerical Modelling of Microplastics in Marine Waters	Antigoni Zakirakou, AUTH Greece (online)
12:00-12:20	Integrated Monitoring Programme for the Chorokhi River Mouth	Joint team from BSU Izolda Matchutadze, KTU Kadir Seyhan (Georgia-Turkey)
12:20-12:40	Measuring Microplastics in Georgian Waters – Mare Nigram Campaign	Iulian Pejar, GeoEcoMar, DOORS Project (invited, online)
12:40-13:00	Coffee Break and Joint Photo	
13:00-13:20	Coastal Clean-Up and Beach Litter Monitoring: Methodologies & Experience	Mermuka Gelava, GMG / FoE Georgia
13:20-13:30	Discussion: Roles of Local Authorities, Universities, and NGOs	All stakeholders and CARE SEA Partners
13:30-14:30	Lunch Break	
14:30-15:00	Transfer to Chorokhi River site	Organized transport
16:00-16:30	Demonstration of Field Sampling Protocols	Led by Izolda Matchutadze BSU and Kadir Seyhan KTU
16:30-17:00	Wrap-up Discussion on Field Protocol Harmonisation	Field Team & Participants
17:00	Return to Batumi / End of Day 1	

Day 2 – Beach Clean-Up and Monitoring
 Date: Tuesday, 23 September 2025, 10:00 Georgian Time
 Location: Selected Beaches (to be determined)

Time	Activity	Facilitator
10:00-10:30	Participant Gathering and Safety Briefing	GMG Team
10:30-12:00	Beach Clean-Up and Litter Data Collection	All Participants
12:00-12:30	Photo Documentation and Waste Sorting	GMG / BSU / Volunteers
12:30-13:00	Preliminary Data Review and Feedback Session	CARE SEA Experts
13:00	Light Lunch and Farewell	Organizing Team

Notes:
 - Workshop language: English (primary), with Georgian interpretation provided via Zoom.
 - Training workshop and beach campaign may be filmed by EU/Georgian video maker team
 - Participants joining the field activities are encouraged to wear suitable outdoor clothing, closed shoes, and sun protection.

interreg Co-funded by the European Union
NEXT Black Sea Basin

სახვადო სემინარი მიკრო- და ნანოპლასტიკების მონიტორინგის შესახებ სანაპირო და მტკნარი წყლის გარემოში

ორგანიზატორები: Interreg CARE SEA პროექტის პარტნიორი და EMFAP RESPONSE პროექტი GMG/FoE-GE
 დღე 1 – სახვადო პლასტიკების მონიტორინგის საწვავი სემინარი
 თარიღი: 22 სექტემბერი, 2025, 10:30
 ფორმატი: **საბრუნველი** (ბრუნველი და Zoom-ის საშუალებით), **Zoom-ის ბმული:** <https://us01web.zoom.us/j/99488554801>
 ადგილმდებარეობა: BSU-ს აუდიტორიის #129 ოთახი, ახალი კამპუსი (საბრუნველი სემინარი) / ჭოროხის მდინარის ნაპირი (საწვავი სემინარი)

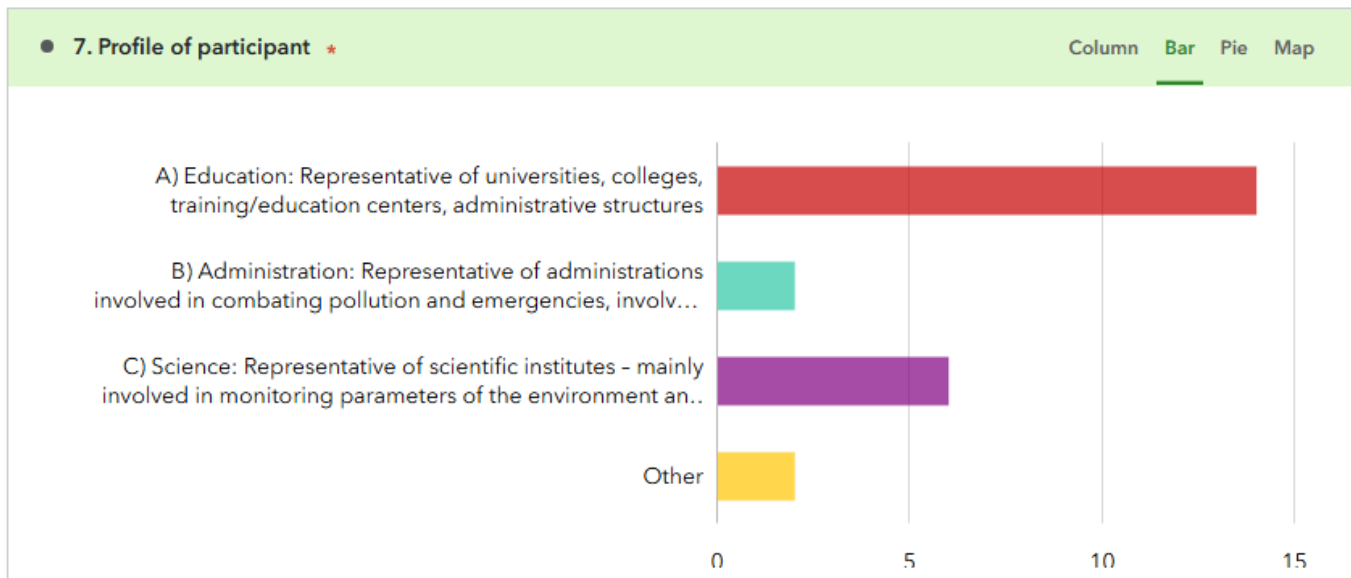
დრო	სესია	სპიკერი / ფასილტატორი	
10:30-11:00	რეგისტრაცია და მიმოსვლის დრო	BSU-ს კოორდინაციის გუნდი	
11:00-11:10	შესვლიანი რიტორიკა, CARE SEA პროექტი სემინარის მიზნები და კონტექსტი	ოზოდა მატხუთაძე, BSU CARE SEA კოორდინატორი, ნინო ჩიხრაძე, თავმჯდომარე, GMG/FoE-GE, RESPONSE	
11:10-11:20	RESPONSE პროექტი და მისი Toolbox	მამუკა გელავა, GMG/FoE-GE-ს RESPONSE პროექტის მენეჯერი	
11:20-11:40	დუნაბის დელტის მდებარეობის მონიტორინგის მეთოდები და ვიდეო დემონსტრაცია	კრისტინა დესპინა, DDRI რუმინეთი (ონლაინ)	
11:40-12:00	მიკროპლასტიკების რიცხვითი მოდელირება მარინულ წყლებში	ანტიგონი ჯაკირაკო, AUTH საბერძნეთი (ონლაინ)	
12:00-12:20	ინტეგრირებული მონიტორინგის პროგრამა ჭოროხის მდინარის შესართავის რეგიონში	გეორგიანული გუნდი: იზოდა მატხუთაძე, KTU-ს კადირ სეჰანი	
12:20-12:40	მიკროპლასტიკების გაზომვა: სანაპირო წყლებში – Mare Nigram Campaign	იულიან პეჯარი, GeoEcoMar, DOORS Project (დასრულებული, ონლაინ)	
12:40-13:00	კაფე-ბრეკი და ჯოინტ ფოტო		
13:00-13:20	სანაპირო წყლის დასაფარავი და სანაპირო წყლის მონიტორინგის მეთოდები: გამოცდილება და ვიდეო დემონსტრაცია	მამუკა გელავა, GMG / FoE Georgia	
13:20-13:30	დასრულებული სემინარის შედეგების განხილვა და კომპილაციის მომზადება	სემინარის ორგანიზატორები: იზოდა მატხუთაძე, BSU და CARE SEA-ს პარტნიორები	
13:30-14:30	სადილის შესვენება		
14:30-15:00	13:30-14:00	სემინარის პარტნიორების შეხვედრა	ორგანიზატორების გუნდი
14:00-14:30	14:00-15:00	სადილის დასრულება და მონიტორინგის ადგილის დროის განსაზღვრა	BSU-ს, KTU-ს გუნდები
16:30-17:00	15:30-16:00	მონიტორინგის მეთოდების დემონსტრაცია და ვიდეო დემონსტრაცია	სადილის გუნდი და მონიტორინგის
17:00	16:00	დასრულებული სემინარის შედეგების განხილვა	

Day 2 – Beach Clean-Up and Monitoring
 Date: Tuesday, 23 September 2025
 ადგილმდებარეობა: შერჩეული სანაპირო (საბრუნველი)

დრო	აქტივობა	ფასილტატორი	
10:00-10:30	მონაწილეთა შეკრება და უსაფრთხოების ბრეფინგი	GMG გუნდი	
10:30-12:00	დასაფარავი სანაპირო და მონიტორინგის მეთოდები	ყველა მონაწილე	
12:00-12:30	ფოტო დოკუმენტაცია და მონიტორინგის მეთოდების განხილვა	GMG / BSU / მონაწილენი	
12:30-13:00	სანაპირო მონიტორინგის მეთოდების განხილვა და ვიდეო დემონსტრაცია	CARE SEA გუნდები	
13:00	12:30-13:00	სადილის შესვენება და დასრულებული სემინარის შედეგების განხილვა	სანაპირო გუნდი

შენიშვნები:
 - სემინარის ენა: ინგლისური (ძირითადი), ქართული ენის თარგმანი Zoom-ის საშუალებით.
 - საწვადო სემინარი და სანაპირო კამპანია შესაძლებელია ვიდეოგადაღების საშუალებით. ვიდეოგადაღების გუნდი შექმნილია.
 - საწვადო სემინარის მონაწილე პირებს ვთხოვთ ატარებდნენ შესაფერის სასაბურთაო, დახურული ფეხსაცმელი და იცხადონ მზის დაცვის საშუალებები (კეპი, სუნთქვა).

Profile of training participants



Micro and macro plastics training workshop participants (physical), BSU, Batumi, 2025.09.22



Screenshot of the online participants of the training workshop

D3.2 REPORT AND MATERIAL OF THE ADVANCED TRAINING COURSES



Beach litter cleanup/count exercise on World Cleanup Day of 2025.09.24 in Batumi



Micro plastics sampling at Kobuleti beach using JPI Ocean donated Andromeda microplastics kit



Sample PowerPoint presentation slides (beach litter cleanup and count module in Georgian)

The image displays 15 numbered slides from a PowerPoint presentation. Each slide features the 'RESPONSE' logo and the text 'Building Resilient Communities under existing & new Marine Pollution Challenges in the Black Sea Region'. The slides are as follows:

- Slide 1:** Introduction to the RESPONSE project and the 'ToolKit'.
- Slide 2:** 'RESPONSE – პარტნიორები' (Partners) showing a map of the Black Sea region with arrows pointing to various countries.
- Slide 3:** 'RESPONSE – მიზნები' (Objectives) listing the project's goals.
- Slide 4:** 'RESPONSE – სამუშაო პაკეტი' (Work Package) showing a diagram with four work packages (WP1-WP4).
- Slide 5:** 'RESPONSE – მიზნები' (Objectives) with a QR code.
- Slide 6:** 'RESPONSE – ტრენინგი' (Training) describing the training module.
- Slide 7:** 'RESPONSE – ტრენინგი' (Training) listing training topics.
- Slide 8:** 'RESPONSE – ტრენინგი' (Training) listing training topics.
- Slide 9:** 'RESPONSE – ტრენინგი' (Training) listing training topics.
- Slide 10:** 'RESPONSE – ტრენინგი' (Training) listing training topics.
- Slide 11:** 'RESPONSE – ტრენინგი' (Training) listing training topics, marked with a star.
- Slide 12:** 'RESPONSE – ტრენინგი' (Training) listing training topics.
- Slide 13:** 'RESPONSE – ტრენინგი' (Training) listing training topics.
- Slide 14:** 'RESPONSE – ტრენინგი' (Training) featuring 'World Oceans Day' and images of beach cleanup.
- Slide 15:** 'RESPONSE – ტრენინგი' (Training) featuring 'World Oceans Day' and images of beach cleanup.

Web and social media coverage:

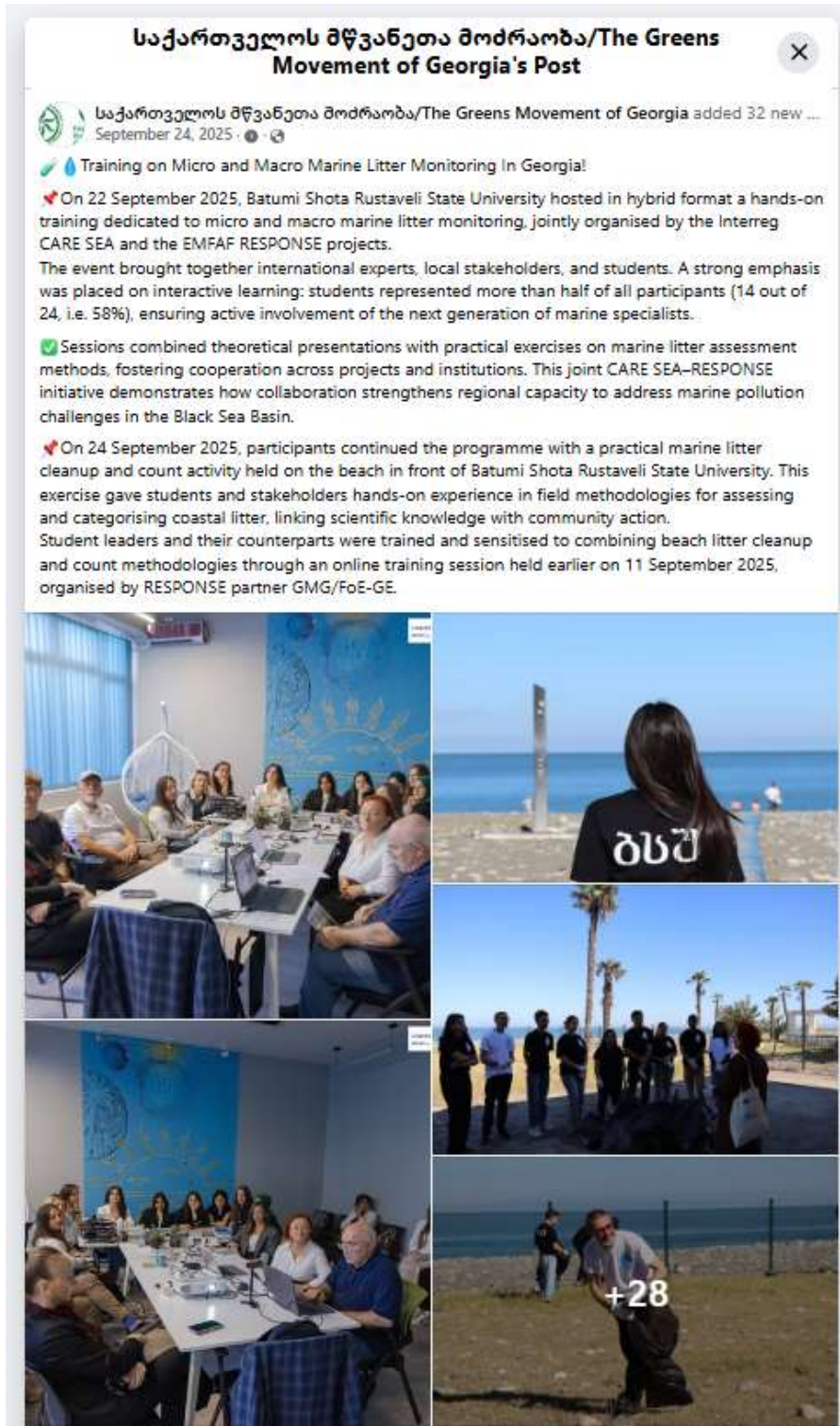
workshop and cleanup events disseminated by Georgian partner GMG/FoE-GE via Facebook

https://www.facebook.com/permalink.php?story_fbid=pfbid036xS7mrDkd2XFkpaUJfgzevJ5j3AYGD96XzUCS8Y3oECPF4gQGG4Ro6YALRmb1nx4l&id=100066990818971

Post shared by RESPONSE project

<https://www.facebook.com/responseblacksea/posts/pfbid022vd8fAESQvyBqy8Nv1GvLf8WfRRWuDE4HRndNEEXWwrNjGekLoDDyLZXjeowDoEvI>

Training info on BSU webpage <https://caresea.net/training-on-monitoring-of-micro-and-macrolitter>



C. Training course in Romania

Invitation and Agenda for the Oil pollution workshop, Constanta- 03.03.2026



Pictures from the Oil pollution workshop, Constanta- 03.03.2026



D. Training course in Ukraine

Invitation and agenda for the training on 27.02.2026

НАН УКРАЇНИ
ДЕРЖАВНА УСТАНОВА
«ІНСТИТУТ РИНКУ І
ЕКОНОМІКО-ЕКОЛОГІЧНИХ
ДОСЛІДЖЕНЬ
НАЦІОНАЛЬНОЇ АКАДЕМІЇ
НАУК УКРАЇНИ»
(ДУ «ІРЕЕД НАН України»)



NAS OF UKRAINE
STATE ORGANIZATION
«INSTITUTE OF MARKET AND
ECONOMIC & ECOLOGICAL
RESEARCHES OF THE NATIONAL
ACADEMY OF SCIENCES OF
UKRAINE»
(SO «IMEER of NAS of Ukraine»)

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Frantsuzskiy Boulevard, 29, Odessa, 65044, Ukraine
тел. (048) 722-66-11, 722-29-05

<https://impeer.org.ua/> e-mail: oss_iprei@ukr.net код ЄДРПОУ 01209765

24.02.2026р. № 3/72

ЗАПРОШЕННЯ

Маємо за честь запросити Вас 27 лютого 2026р. прийняти участь у семінарі на тему “Організація та проведення навчальних курсів з управління забрудненням морського середовища (в т.ч. внаслідок воєнної агресії)” “Setting up and running training courses on marine pollution management (caused by military aggression)” за міжнародним проектом RESPONSE/EMFAF «Building Response Frameworks under existing and new Marine Pollution Challenges in the Black Sea» (<https://www.response-project.com/>).

Співорганізатори семінару: ДУ «Інститут ринку і економіко-екологічних досліджень НАН України» та Чорноморське відділення Української Екологічної Академії наук.

Семінар проходитьиме в приміщенні ДУ «Інститут ринку і економіко-екологічних досліджень НАН України», за адресою м. Одеса, Французький бульвар, 29, Зала засідань, к. 32, початок заходу о 10.00, реєстрація розпочнеться о 9:30.

Будемо раді бачити Вас особисто або можлива дистанційна участь за посиланням: <https://us02web.zoom.us/j/7457905225>

Ідентифікатор: 745 790 5225

Просимо підтвердити участь у семінарі до 26 лютого 2026р., надіславши повідомлення на адресу oss_iprei@ukr.net

Програма семінару додається.

З найкращими побажаннями,
Директор Інституту,
Академік НАН України, д.е.н., проф.

Борис БУРКИНСЬКИЙ



Координатор проекту Response,
д.е.н., проф.

Олександр ЛАЙКО



State Organization "Institute of Market
and Economic&Ecological Researches
of the National Academy of Sciences of Ukraine"



Black Sea Branch
of Ukrainian Environmental

Program of the seminar "Organization and conducting of training courses on marine pollution management (including impact of military aggression)" under the international project RESPONSE/EMFAF «Building Response Frameworks under existing and new Marine Pollution Challenges in the Black Sea » (<https://www.response-project.com/>).

Venue : State Organization "Institute of Market and Economic-Ecological Research of the NAS of Ukraine", Ukraine, Odessa, French Boulevard, 29, Meeting Room, Room 32

February 27, 2026

09:30 – 10:00	Registration and welcome coffee
10:00 – 10:20	Official opening/welcome speech : <ul style="list-style-type: none"> Director of the State Organization "Institute of Market and Economic-Ecological Research of the NAS of Ukraine", Academician of the NAS of Ukraine Borys Burkynskyi Head of the Basin management aquatic resources river Black Sea and Lower Danube Region, State Agency for Water Resources resources of Ukraine, PhD Pavlo Bulanovich (<i>online</i>) Director of the Department of Ecology and Natural Resources of the Odessa Regional State Administration Iryna Shatokhina (<i>online</i>) Sea Ports Authority of Ukraine Vladyslav Dolynskyi (<i>online</i>) State Ecological Inspectorate of the South-Western District (Mykolaiv and Odesa regions) Yuriy Dyachenko (<i>online</i>)
10:00 – 12:00	Session I: Presentation of tools and methods for implementing training programs under the project Response Moderator: Oleksandr Laiko
10:20 – 10:40	Guest speaker online (project partner) Emma Gileva Black Sea NGO Network – BSNN, Bulgaria (online)
10.40-11.00	Presentation of the goals and objectives of the Response project curricula: from national curricula to training using digital tools, in the context of modern challenges for the countries of the Black Sea basin, Prof. Oleksandr Laiko
11.00-11.20	Taking into account in the training program the institutional framework for responding to pollution of the Black Sea in the face of modern challenges and threats, Prof., Cor.-member of NASU Nina Khumarova
11.20-11.40	Presentation Monitoring for pollution research in marine ecosystems: research infrastructures as a basis for response on extraordinary situation, Prof. Olga Iermakova
11.40-12.00	Presentation training program structures in the context of key challenges to conducting research on marine ecosystem pollution for the purpose of further rehabilitation, PhD Yulia Kotelnikova
12:00 – 12:30	Coffee break
12.30 – 14:00	Session II: Accountability in education factor program from pollution Black sea , its influence on biodiversity and marine ecosystems Moderator: Yulia Kotelnikova
	Invited speaker and – Viktor Komorin , Andriy Ben , Yuriy Dyachenko, Vladyslav Dolynsky , Anastasia Snigirova , Mykhailo Son (<i>with permission</i>)
12.30 – 12.50	Taking into account the geography and characteristics of the Black Sea for research into pollution, impact and rehabilitation of marine ecosystems, Prof. Oleg RUBEL
12.50-13.10	Presentation of sources, classification and impact on marine ecosystems pollution associated with the consequences armed conflicts, PhD Olga Golikova
13.10-13.30	Monitoring ecosystems and biodiversity in the program response training on spills oil under the influence of military aggression: regulatory framework and practical exercises, PhD Iryna Tsynalevska
13.30-13.50	Response preparedness presentation on extraordinary situations: basic guidelines for volunteers in the context of man-made disasters caused by the war, PhD Vladyslav Mykhailenko
13.50 – 14.10	STURNET (BSB 00172): Current trends and opportunities for

14.10-14.30	marine pollution response, PhD Olga KARPENKO Discussion of training needs , practical examples of response, research, and mitigation: investigation, emergency survey, human factor analysis
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Extended Materials on the training event in Ukraine 27 February 2026

During the RESPONSE National Workshop “Organization and Implementation of Training Courses on Marine Pollution Management (including pollution caused by military affect)” the new training courses, developed by State Organization “Institute of Market and Economic & Ecological Research of the National Academy of Sciences of Ukraine” + by Black Sea Branch of Ukrainian Environmental Academy of Sciences (BSBUEAS) were represented to the stakeholders. The training courses Curricula, developed by Ukrainian partners include 19 Main modules + 5 Special sessions. The special emphasize during the workshop presentations was made on 8 the most significant and impact topics for Ukraine, namely: Module №1. Introduction to the issues of research into pollution of marine ecosystems; Module №2. Geography and characteristics of the Black Sea, pollution and its impact on marine ecosystems; Module №3. Types and sources of pollution, the impact of pollution on the state of the ecosystems of the Black Sea Basin (BSB); Module №6. Pollution Monitoring and Assessment; Module №7 Oil Spill Response Training Program: Ecosystem and Biodiversity Protection Focus; Module № 8 Oil Spill Response Training for Volunteers: Ecosystem and Biodiversity Protection; Module №13 Specialized Training Curriculum: Marine Pollution Response During Armed Conflicts; Special Module: Response preparedness presentation on extraordinary situations: basic guidelines for volunteers in the context of man-made disasters caused by the war.

All of these topics include aspects of monitoring, preparedness and response to marine pollution, caused by military conflicts. Interactive mode of presentations (questions, answers, suggestions, communication) has provided opportunities for networking and sustainability of the project results, because stakeholders are very interested in development in the project results, especially due to the Digital Tool.



Organisation and Implementation of Training Courses on Marine Pollution Management (including pollution caused by military affect), Odesa- 27.02.2026



Presentations, discussion and suggestions from the stakeholders on the Training Course Modules and the Digital-Toolkit presentations: oil-spills and military pollution aspects, Odesa- 27.02.2026

The folders with photos and video of the National workshop: Organisation and conduct of training courses on marine pollution management are available on links:

D3.2 REPORT AND MATERIAL OF THE ADVANCED TRAINING COURSES

<https://drive.google.com/drive/folders/18DxWcNHyWZrpq1GomYXEKfQYI6D7E8qS?usp=sharing>

https://drive.google.com/file/d/1ijx77Bb0g_k0Xfu8HMP8llGP1eh0bjwK/view?usp=sharing

Short video on the training was uploaded on YouTube <https://youtu.be/XF065mEbmo0>

News about the workshop and the project were shared by State Organization «Institute of Market and Economic & Ecological Research of the National Academy of Sciences of Ukraine» (SO IMEER NASU) + by Black Sea Branch of Ukrainian Environmental Academy of Sciences (BSBUEAS) on official sites, Facebook and LinkedIn accounts

<https://www.facebook.com/photo/?fbid=25771171935901492&set=a.844627695649261>

[https://www.facebook.com/tat.ana.averockina/posts/pfbid0FhuNaTRWNxVEMHaALsrTzAQeKSKbYqqSKUZgSda6h1cmLfnmPxbgzJrnMrMfFRrql?_cft_\[0\]=AZZkj9QNKNUyfJ91clUchgoT6tWOM5X-13CPNfw67vMjq49TANzmgXy3j9etYxOJM6IJE-57Pe28wu6VStm-i2R7rS5MFizZrrz-mIXQIQukB6y5rFK-XNvMZBT3PYs-YEwFcUD48mJeX3vRj_sUtsExyQkKi0IIBVDKfsKkWPrlwA&_tn_=%20%2CP-R](https://www.facebook.com/tat.ana.averockina/posts/pfbid0FhuNaTRWNxVEMHaALsrTzAQeKSKbYqqSKUZgSda6h1cmLfnmPxbgzJrnMrMfFRrql?_cft_[0]=AZZkj9QNKNUyfJ91clUchgoT6tWOM5X-13CPNfw67vMjq49TANzmgXy3j9etYxOJM6IJE-57Pe28wu6VStm-i2R7rS5MFizZrrz-mIXQIQukB6y5rFK-XNvMZBT3PYs-YEwFcUD48mJeX3vRj_sUtsExyQkKi0IIBVDKfsKkWPrlwA&_tn_=%20%2CP-R)

[https://www.facebook.com/responseblacksea/posts/pfbid02KG6HH76wYmYmiL6d5HjrsdfKHgGeq3keDzce3Cct8TtYEAxznLRgtioa4PqRduUI?_cft_\[0\]=AZbnXp2tzbIBnr1UDQKqbyxyEqYApGfrtDTtNbRaFvhJOhqT2kQ4XDqufjb1GXRAWKdFfR6gHoJ4F2JIs1z5bgguFrLrQgefwaDRKsQoHFOFhp055V6gqdaUJPxBdsT35qyi35IG4YCLPgW2EG_DFCTynDNh1fsWfGVkDbR3CpURewh4G9yFIOEqsQvdYVI5w5nWtmzJFugnQiauDwf-Fp&_tn_=%20%2CP-R](https://www.facebook.com/responseblacksea/posts/pfbid02KG6HH76wYmYmiL6d5HjrsdfKHgGeq3keDzce3Cct8TtYEAxznLRgtioa4PqRduUI?_cft_[0]=AZbnXp2tzbIBnr1UDQKqbyxyEqYApGfrtDTtNbRaFvhJOhqT2kQ4XDqufjb1GXRAWKdFfR6gHoJ4F2JIs1z5bgguFrLrQgefwaDRKsQoHFOFhp055V6gqdaUJPxBdsT35qyi35IG4YCLPgW2EG_DFCTynDNh1fsWfGVkDbR3CpURewh4G9yFIOEqsQvdYVI5w5nWtmzJFugnQiauDwf-Fp&_tn_=%20%2CP-R)

Information about the event is posted on the official web-site of SO "IMEER NASU"
<https://en.impeer.org.ua/2026/03/02/sturnet-bsb00172-synergy-for-the-black-sea-ecosystems-protection/>

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The training event in Ukraine 27 February 2026 results:

Feedback from the workshop

Participant feedback from the workshop demonstrates the significant relevance and high practical value of the RESPONSE project materials. The event curriculum was well-received for its pertinence and the immediate applicability of the knowledge gained to professional practice. The feedback collected from participants following the National Workshop organised within the RESPONSE project framework confirms a high level the relevance, quality, and practical applicability of the training content delivered during the event.

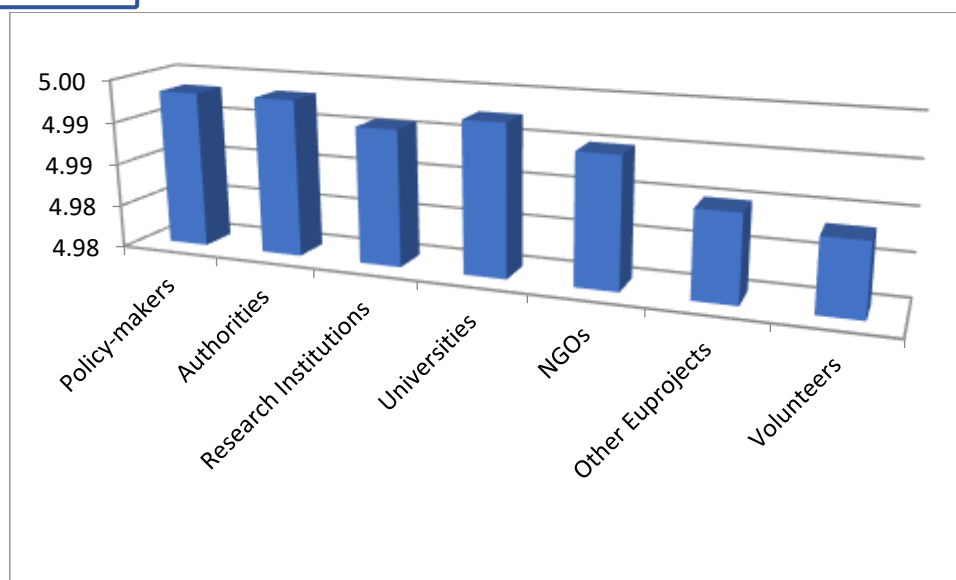
Overall, participants expressed the positive estimation of the training event. Due to the evaluation tool it was defined that the most responses of the stakeholders are concentrated in the upper scoring categories (High and Very High).

According to the attendance list there are 46 participants have passed registration. 30 of them have participated in evaluation, the results of which are represented on the following table.

The grade of participants' satisfaction on the training programme results

	Policy-makers	Authorities	Research Institutions	Universities	NGOs	Other Euprojects	Volunteers
1	5	5	5	4,97	5	5	5
2	4,98	4,98	4,98	5	4,97	4,97	4,96
3	5	5	5	5	5		4,99
4			4,95	5			
5			5				
6			4,99				
7			5				
8			5				
9			5				
10			5				
11			4,97				
12			5				
	4,99	4,99	4,99	4,99	4,99	4,99	4,98

And the following diagram also shows the high level of participants' satisfaction on the training programme results. The average score is 4.99.



1. Training satisfaction and relevance

The topics presented, including the publicly available RESPONSE toolkit, demonstrate high to very high thematic relevance. The topics of key presentations in Ukraine (7modules+1Special) are recognized as actual and important in aspects of the national context, namely – military influence aspect. Participant feedback indicates positive reaction and high relevance of the training course. Questions and discussions are focused mainly on the application of knowledge and establishing solutions for future instant networking.

2. Relevance to the professional role (Q3.2)

The most of the participants emphasized on the high relevance of the workshop for the professional and mentioned about necessity of permanent improving of the training courses.

3. Clarity of Content and Delivery (Q3.3)

The Clarity and Content of the training materials are estimated by the participants as high. They accentuated that the results and topics of the modules indicate high and very high relevance. Only one participant ask about translation of the presentations on the national language, all the rest are satisfied with English version as international and quite clear for all.

4. Usefulness of practical components/exercises (Q3.4)

The usefulness of practical components/exercises is also estimated as quite high because of the modules topicality and applicability of the training results under influence of modern challenges.

5. Elements appreciated by participants (Q3.8 – What was most useful?)

The most useful for the stakeholders were recognized references on national, international and EU rules, institutional framework; special attention to volunteers trainings; modern topicality of the materials; convenient Digital toolkit.

6. Suggestions for improvement (Q3.9 – What should be improved?)

To extend region-specific scenarios; to highlight aspects of clearer coordination interfaces between port authorities, environmental inspectorates, emergency services, and scientific partners; to extend a repository of case studies to support replication and learning.

One the main suggestions includes proposal for permanent cooperation among key stakeholders (Policy-makers + authorities + research institutions + universities + NGOs + volunteers + other projects)

in order establish network of BSB-response on marine pollutions, especially those that caused by war.

7. Overall Conclusion

The feedback shows that the national workshop successfully contributed to:

- strengthening stakeholders' knowledge and improving readiness to quick reaction on marine pollution under stress of modern challenges, especially military ones.
- improving awareness of the modern methods and technologies
- improving of practical response readiness of all groups of the stakeholders.
- promoting the RESPONSE Digital toolkit as the gathering instrument not only for the trainings, but also for the networking.
- supporting fruitful interaction among the all groups of the Responde stakeholders

Stakeholders' responses

Stakeholder responses addressed the relevance of international protocols, their use at the national level, and the limitations imposed on the activities of relevant bodies and organizations by martial law and armed aggression. The increasing number of sources of marine pollution requires updating the operational procedures of special services, as well as considering their impact on biodiversity, monitoring the consequences, and addressing them. The environmental target audience emphasized the underresearched impact of war remnants on marine biodiversity in the long term. Participants emphasized the high relevance and practical applicability of the developed guidelines in the context of wartime-related environmental risks. Vladyslav Dolinskyi (Administration of Seaports of Ukraine) highlighted their thoroughness, clear structure, and suitability as a baseline tool for volunteer coordination and field response. Yuliia Kotelnykova (Ukrainian Scientific Center of Ecology of the Sea) additionally noted the strong integration of scientific approaches, particularly regarding biodiversity and ecosystem impacts, which enhances the overall quality and credibility of the document.

Vladyslav Dolynskyi from the Administration of Sea Ports of Ukraine noted the importance of the presentation on the monitoring study of marine ecosystem pollution. He highlighted the necessity of including topics on research infrastructure, collaboration between international organizations in marine environmental monitoring, and the Common Maritime Agenda for the Black Sea into training programs.

Participants stressed that oil spill preparedness and response must increasingly account for security constraints and conflict-related disruptions. The Ukrainian experience shows how access restrictions, damaged infrastructure, and safety risks can affect monitoring and response. This reinforces the need for clear volunteer role boundaries, stop-work principles, and disciplined reporting.

The responses of participants focused on the high-level and conceptual nature of the materials, considered useful for training but insufficiently adapted to the Black Sea context and the Ukrainian institutional framework.

Environmental authorities questioned the practical applicability of proposed approaches within existing legislation and emergency systems, particularly regarding inter-agency coordination and integration into coastal management.

Scientists emphasized the lack of quantitative assessments, including ecosystem service valuation, cost-effectiveness of response techniques, and justification of active vs. natural recovery.

Port representatives highlighted operational feasibility issues: response time, compatibility with port infrastructure, and financial responsibility in case of pollution incidents.

The responses of participants were related to certain specific examples, encompassing the implementations of the specific law's related to Marine Pollution at national level, and Rehabilitations post-emergencies events, but also related to specific subjects of training toolbox, specific suggestions. Participants stressed the importance of linking response actions to sensitive habitat protection and minimizing long-term impacts through early prioritization and documentation. The discussion underscored that biodiversity protection should be mainstreamed into response planning and execution, rather than approached as a follow-on activity once containment and clean-up are completed.

Points raised, suggestions

Participants proposed adding more region-specific scenarios and structured decision-support prompts to help practitioners turn observations into prioritized actions. Further suggestions included standardized reporting formats (what/where/when/evidence), clearer coordination interfaces between port authorities, environmental inspectorates, emergency services, and scientific partners, and a repository of case studies to support replication and learning.

The key points, raised by stakeholders and their suggestions include certification of the training results, involving of researchers in cooperation with practitioners for better training process, implementation of specialized research infrastructures into the monitoring, research and quick response processes. The suggestions mainly include proposal for permanent cooperation among key stakeholders (Policy-makers + authorities + research institutions + universities + NGOs + volunteers + other projects) in order establish network of BSB-response on marine pollutions, especially those that caused by war.

The recommendations addressed both theoretical issues (the need to consider permitted pollution response practices in individual regions, the quality and composition of the equipment used to clean up spills of various etiologies) and practical ones. For example, it was proposed to supplement training courses not only with simple assignments to develop practical skills, but also to analyze specific incidents in the Black Sea, with step-by-step response algorithms for official agencies (USPA).

The participants (especially representative of the Sea Ports Administration of Ukraine, Vladyslav Dolynsky), emphasized the necessity of gaining experience in eliminating pollution in rivers with high water flow intensity, as such conditions make it more difficult to localize contamination and concentrate it in a specific area.

Participants emphasized the critical role of research infrastructures, including EMSO ERIC (European Multidisciplinary Seafloor and water-column Observatory) and other national and regional monitoring facilities, as a backbone for effective marine environmental monitoring and emergency response. It was suggested that training programs should include modules on the use of these infrastructures, their operational capabilities, and the integration of their data into decision-making processes.

Vladyslav Dolynskyi proposed centralizing of the collection of citizen monitoring data through a responsible authority. An alternative approach was supported, whereby data would be submitted via a designated coordinator responsible for verification, in order to avoid overloading state institutions with unstructured information.

Serhii Stepanenko proposed strengthening the role of the state by introducing mandatory training and granting formal authority to trained individuals. While this approach was supported conceptually, participants agreed that volunteers will remain the primary operational force, while the establishment of coordination and training centres should be considered as a future development priority.

It was also proposed that volunteer coordinators should be appointed by responsible authorities rather than selected on-site. This idea was supported but recognised as institutionally complex, as it would require a state-level system for training and rapid deployment of qualified personnel. At the current stage, structured volunteer training remains the key priority.

Additionally, Vladyslav Dolinskyi proposed introducing public environmental inspectors with limited authority to coordinate volunteers. This proposal was supported and identified as a potential direction for further development.

Participants suggested adding a short annex on "operating under security constraints" to accompany the modules. It should cover restricted area awareness, personal safety triggers, and guidance on reporting when connectivity is limited. They also recommended additional training scenarios and short practical exercises, such as go/no-go decisions, reporting drills, and habitat-protection planning, reflecting constrained environments and the need for close coordination with competent authorities.

Suggestions aimed at strengthening the applied and region-specific dimension. Participants proposed: adding Black Sea case studies; providing guidelines for economic valuation and damage assessment; introducing decision-making algorithms for selecting response techniques; clarifying institutional roles and responsibilities; integrating port-specific protocols; developing practical tools (checklists, response matrices, cost frameworks).

Additional suggestions included linking materials to European tools and services (satellite monitoring, GIS, Copernicus, EMSA) and providing concise guidance documents for practical use.

Scientific researchers emphasize the necessity of the Source-Pathway-Receptor (SPR) model to move beyond point-measurements toward integrated spatial identification of pollution hotspots. Environmental NGOs and community groups express urgent concern regarding the "unprecedented shock" of war-related stressors, specifically the mass mortality of dolphins linked to acoustic trauma and the toxic legacy of the Kakhovka HPP catastrophe. Regional policy-makers from the Bucharest Convention framework call for stricter cross-border harmonization of monitoring data to meet the requirements of the EU Marine Strategy Framework Directive (MSFD) and achieve "Good Environmental Status".

Meanwhile, maritime industry stakeholders and port authorities in Odesa and Chornomorsk react to the data on shipping-related pressures, such as underwater noise and oil pollution, by questioning the cost-effectiveness of implementing the suggested in-situ sensors and autonomous monitoring platforms. Fisheries and aquaculture representatives focus on the "biomagnification" of heavy metals and "forever chemicals" (PFAS), fearing that these contaminants could alter the stability of predator-prey dynamics and compromise the commercial safety of Black Sea stocks.

Public health officials seek further clarification on the "chemical cocktail" of pharmaceuticals and pathogens identified in urban wastewater, given the sea's limited water exchange and tendency to accumulate toxic substances over decades. Educators and "Citizen Science" advocates see the categorization of microplastics and marine litter as a powerful tool for engaging the public in

decentralized monitoring efforts via mobile applications and open platforms. Finally, national security and defense analysts highlight the legal challenges of enforcing international conventions like MARPOL during active conflict, noting how military aggression undermines existing environmental obligations in the basin.

Issues and comments

The operational tools, and especially the near real-time tools, require specific expertise and Participants noted that ecosystem protection requires consistent coordination and a shared operational language, especially during fast-moving incidents. Advanced tools such as mapping, modeling, and near real-time information require specialized expertise and should be embedded in institutional procedures rather than applied ad hoc. Stakeholders stressed the need to clearly define roles for environmental assessment, shoreline evaluation, wildlife response, waste management, and rehabilitation to avoid duplication or gaps.

The main issue includes war and martial law restrictions, especially for data access, monitoring and dissemination of alarms and best solutions.

The key issues are concerned with the limitations imposed on the activities of relevant bodies and organizations by martial law and armed aggression

the limited applicability of proposed approaches in real conditions.

Many techniques require significant resources, expertise, and coordination, which remain limited in Ukraine.

There is weak integration between ecological and economic dimensions, with unclear feasibility and prioritization mechanisms.

Participants also noted insufficient adaptation to Black Sea specifics and reliance on generalized practices.

Finally, real-time tools require stable data, trained personnel, and institutional interoperability, which are not fully ensured.

The issues raised regarding the individualized training course trajectory included a proposal to create an AI-assistant on the Digital Toolbox that would be able to provide recommendations for improving the course module set based on the student's uploaded materials and rationale.

One of the practical design principles for exercises and field training proposed within the modernization of the training program—namely, the principle of community engagement, which implies involving local communities in monitoring and restoration exercises—was considered by the representative of the Sea Ports Administration of Ukraine, Vladyslav Dolynsky, to be a sensitive aspect given the current conditions of wartime and active hostilities on the territory of Ukraine.

Participants also highlighted the need for guidance materials, such as white papers or short orientation notes, that explain how research infrastructures support environmental monitoring, cross-border collaboration, and implementation of the Common Maritime Agenda for the Black Sea.

It was suggested considering a clearer delineation of reporting channels for oil spill incidents depending on their location. In particular, incidents occurring within port water areas could be directed to the Administration of Seaports of Ukraine, while those outside port jurisdictions could be reported to local self-government bodies. Such an approach would contribute to more effective

verification of information, help reduce the risk of misinformation, and support improved coordination of response actions.

Security constraints leave little margin for error and increase risks for volunteers. Training should therefore repeatedly reinforce escalation routes and strict limits on volunteer tasks to prevent injuries and avoid interference with official operations. Participants also noted that constrained monitoring makes structured documentation more important than ever, and recommended brief companion notes and checklists to support consistent replication of the training across organizations.

Indicative module mapping for the Ukrainian training event 27 February 2026 results

Module / area	Training relevance	Evidence from accessible workshop material	Status
The Response: from national curricula to training using digital tools under war influence. RESPONSE Toolkit and the replication guide	High	Presentation materials, discussion, participation of the stakeholders in co-creation The RESPONSE Toolkit presentation and the replication guide providing for the stakeholders	Covered
Institutional framework for responding to pollution of the Black Sea	High	Repeated discussions, Presentation materials, training materials that cover BSB aspect and Ukraine peculiarities	Covered
Types, Sources, Geographical features and Impact of Marine Pollution	High	Presentation materials, discussion, participation of the stakeholders in co-creation, Involvement of Research institutions and Universities	Covered
Monitoring for pollution in marine ecosystems: research infrastructures role	High	Presentation on monitoring approaches, research methodologies, best practices in the marine research infrastructures participation	Covered
Training program on key challenges and further rehabilitation under war influence	High	Presentation materials, discussions with policy makers and authorities, participation of the stakeholders in co-	Covered

D3.2 REPORT AND MATERIAL OF THE ADVANCED TRAINING COURSES

		creation, co-seeking of better solutions	
Sources, classification and impact on marine ecosystems pollution caused by armed conflicts	High	Presentation materials for methods and best practices, discussion, participation of the stakeholders in co-design of solutions, Involvement of Research institutions and Universities	Covered
Response training on spills oil under the influence of military aggression	High	Presentation materials, active discussions, participation of the stakeholders in co-creation, Involvement of Research institutions and Universities	Covered
Response preparedness: basic guidelines for volunteers in disasters caused by the war	High	Presentations, training materials, best practices descriptions, discussions, participation of the stakeholders in co-creation, Involvement of Research institutions and Universities, NGOs, volunteers, other projects	Covered