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SOS-ZEROPOL2030

D5.6 Report of the zero-pollution parliament outlining the EU scenario to achieve zero pollution

Public

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EXECUTIVE SUMMARY

The Zero Pollution Parliament, held in Brussels on the 18th and 19th of November in 2025, brought together 33 stakeholders from 16 European countries, representing research institutes, universities, NGOs, industry and private sector, as well as relevant EU, national, and international bodies. The event built on prior Regional Seas Living Labs held in the North-East Atlantic, the Black Sea, and the Mediterranean Sea regions, and included representatives from the Baltic Sea. The event engaged participants in structured, scenario-based discussions to explore pathways for achieving zero pollution in European seas.

Applying the CO-ACT (Challenges & Objectives – Alternative futures, Consequences & Trade-offs) participatory methodology, stakeholders evaluated the four project priority pollutant groups: nutrients, hazardous substances, microplastics, and underwater noise, and assessed cross-pollutant interactions. Within CO-ACT, the scenario analysis emphasised proactive, preventive approaches complemented by reactive risk-based measures, highlighting the importance of public sector leadership, responsible private sector engagement, and coordinated governance across local, national, and EU levels. Discussions focused on key drivers, barriers, and trade-offs, while exploring innovation, data integration, economic incentives, and awareness-raising as levers for effective action.

For nutrients, stakeholder recommendations focused on circular management, nature-based solutions, spatially targeted interventions, agricultural transition, and Common Agricultural Policy (CAP) aligned funding. Hazardous substances stakeholder recommendations prioritised precautionary phase-out, 'safer and sustainable by design' alternatives, remediation, monitoring, and fair market conditions. Stakeholders recommended microplastics measures that address lifecycle emissions, infrastructure upgrades, eco-design, and cross-sectoral stakeholder engagement. Underwater noise stakeholders emphasised the need to raise more awareness, harmonise monitoring, as well as recommending a European Noise Ship Index and incremental regulatory and behavioural change. Cross-pollutant actions proposed by stakeholders highlighted integrated, ecosystem-based approaches, poly-pollutant risk assessment, shared data systems, and strengthening EU enforcement of measures.

The insights and outcomes of the Zero Pollution Parliament directly inform the development of the SOS-ZEROPOL2030 Strategic Zero Pollution Framework and Roadmap. By providing actionable, stakeholder-led guidance, the event demonstrates how multi-level, science-based, and socially robust strategies could accelerate Europe's transition toward zero pollution in marine environments while fostering innovation, collaboration, and long-term resilience. Crucially, the Parliament highlighted the need for continuous engagement, adaptive governance, and measurable indicators to ensure that policy ambitions translate into tangible improvements for marine ecosystems, human health, and sustainable blue growth.

CONTENT

1. INTRODUCTION

Source to Seas – Zero Pollution 2030 (SOS-ZEROPOL2030) is a four-year Horizon Europe funded project, which started in September 2022 and concludes in August 2026. The project aims to deliver a stakeholder-led European Seas Strategic Zero Pollution Framework to support and guide the EU towards achieving zero pollution in European seas. The SOS-ZEROPOL2030 consortium consists of universities, research institutes, NGO-networks and a non-profit, bringing together 10 project partners from eight EU countries. This partnership provides a balance of expertise in fundamental and applied natural sciences and associated governance concerning marine pollution, as well as in fields of social science that specifically relate to stakeholder engagement and environmental psychology.

This summary report of the Zero Pollution Parliament documents the final Living Lab of the SOS-ZEROPOL2030 project, outlining stakeholder perspectives and recommendations. The event took place in Brussels on 18–19 November in 2025 and brought together a wide range of stakeholders from across Europe to evaluate EU zero-pollution scenarios for the four marine pollutant groups prioritised within the project: nutrients, hazardous substances, microplastics, and underwater noise.

The Zero Pollution Parliament built on insights from earlier Regional Seas Living Labs implemented in 2024 and 2025 with focus on the North-East Atlantic, the Black Sea, and the Mediterranean Sea. These events aimed to identify and assess future pathways with the greatest potential to support the EU in advancing and strengthening the EU zero-pollution ambitions for our seas. Relevant SOS-ZEROPOL2030 resources and outputs are available from the project website under resources (https://soszeropol2030.eu/), while project reports (including the reports of the regional Living Labs); peer reviewed publications, factsheets, and other documents can be accessed within and beyond the project duration here: https://cordis.europa.eu/project/id/101060213/results.

The following subsections of the introduction provide more context about the Zero Pollution Parliament, outlining the event objectives (1.1), summarising the applied participatory methodology (1.2), and including the agenda and information about the participant group composition (1.3). Subsequent sections summarise the discussions, which include a SWOT (strengths, weaknesses, opportunities, and threats) analysis of Zero Pollution Scenarios for European Seas (2), Preferred Scenarios for the project's priority pollutant groups (3), and stakeholder recommendations (4).

1.1. The SOS-ZEROPOL2030 Zero Pollution Parliament

SOS-ZEROPOL2030 places multi-stakeholder engagement at the heart of the project to guide a blue green transition and facilitate co-development of a holistic Strategic Zero Pollution framework. Through structured stakeholder engagement and co-creation processes at Regional Seas and EU levels, SOS-ZEROPOL2030 strives to deliver practical, policy-relevant guidance aligned with sustainability and circular economy principles. The Zero Pollution Parliament built on the results of the project's Regional Seas Living Labs, held in 2024 and 2025. These approaches used future scenarios to support informed decision-making under uncertainty and to explore alternative pathways for reducing marine pollution. The SOS-ZEROPOL2030 Zero Pollution Parliament had the following objectives:

- **To build a shared understanding of priority pollutants:** enhance common awareness and mutual understanding of the SOS-ZEROPOL2030 priority pollutant groups and their relevance to achieving zero pollution in European seas and waters.

- **To foster inclusive, multi-stakeholder dialogue:** bring together key stakeholders to exchange perspectives, share knowledge, and identify synergies for coordinated action on marine pollution reduction.
- **To co-develop objectives, targets and actions:** facilitate joint discussion and consensus-building to help identify objectives, targets and actionable steps towards addressing the target pollutant groups.
- **To advance alignment with EU policy frameworks:** support progress toward the policy vision of the EU Zero Pollution Action Plan, the European Green Deal, and the European Ocean Pact.

The Living Lab format applied during the Zero Pollution Parliament encouraged open exchange between stakeholder groups, allowing participants to articulate their preferred future pathways and discuss trade-offs, synergies, and shared priorities. The final session of the event focused on translating these discussions into concrete EU-level recommendations, targets, and actions to support the implementation of zero-pollution objectives for European seas.

1.2. The SOS-ZEROPOL2030 Living Lab Process

To facilitate co-creation of knowledge, innovation and transition pathways, a wide variety of transformative spaces, often referred to as 'Living Labs' have emerged throughout Europe. These Living Labs can be considered as experimental spaces for engaging academic and research institutes, industry actors and businesses, public authorities, NGOs, government agencies and international bodies around real-world problems. The European Network of Living Labs defines Living Labs as open innovation ecosystems based on a systematic user co-creation approach that integrates research and innovation activities in multi-stakeholder environments (www.enoll.org/living-labs). The approach aims to lead to more socially robust outcomes, provide legitimacy to interventions and create relevant action-oriented knowledge that could more effectively catalyse sustainable transformation. There is a key focus on developing common visions of (potential) futures and associated transition pathways, facilitating social learning and reflection between participating actors. In SOS-ZEROPOL2030, the CO-ACT methodology was designed and applied in the Living Lab framework for zero pollution in European Regional Seas. The CO-ACT acronym stems from its five core components, which form three primary steps in the CO-ACT methodology (see Figure 1).

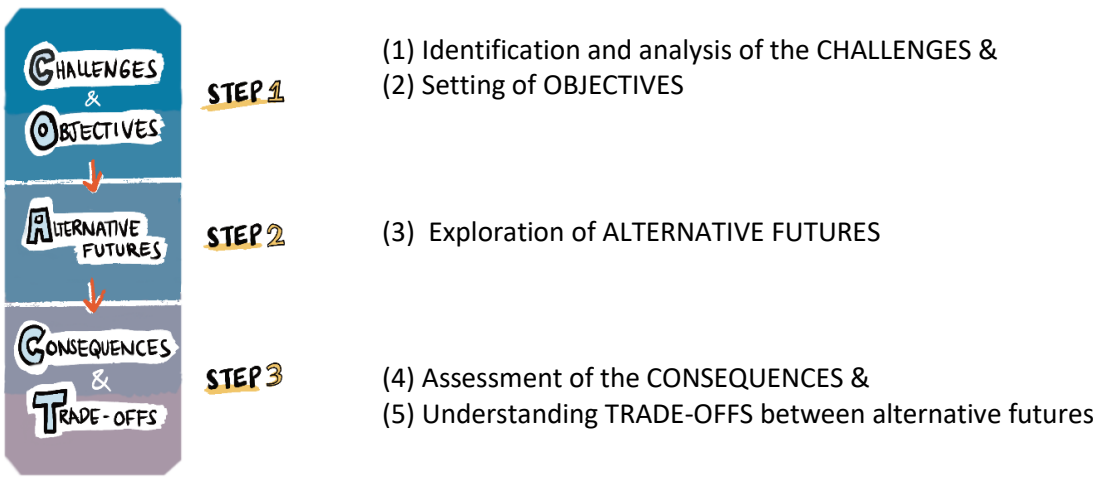


Figure 1: CO-ACT methodology.

The SOS-ZEROPOL2030 Living Lab process combined scientific evidence with structured stakeholder engagement to support zero pollution decision-making. Preparatory research on the project's priority pollutant groups informed technical and governance analyses, which were translated into accessible factsheets for participating stakeholders (see Annex 2). In the first round of Regional Living Labs, stakeholders identified key challenges and criteria shaping zero pollution objectives. These inputs were translated into drivers for alternative futures, forming the basis of regional scenarios. In the second round of Living Labs, stakeholders tested, validated, and refined these scenarios.

The Zero Pollution Parliament Living Lab served as the project's final stakeholder event to assess EU-level scenarios addressing the project's priority pollutant groups. Building on earlier Living Lab outcomes, which are documented in the Regional Living Labs Summary Reports, the first round Report of regional Living Lab meetings and the SWOT analysis of regional Living Labs from the second round, the scenarios explored future pathways to strengthen progress towards zero pollution in European Regional Seas to support decision-making under uncertainty. Figure 2 provides an overview of the CO-ACT process.

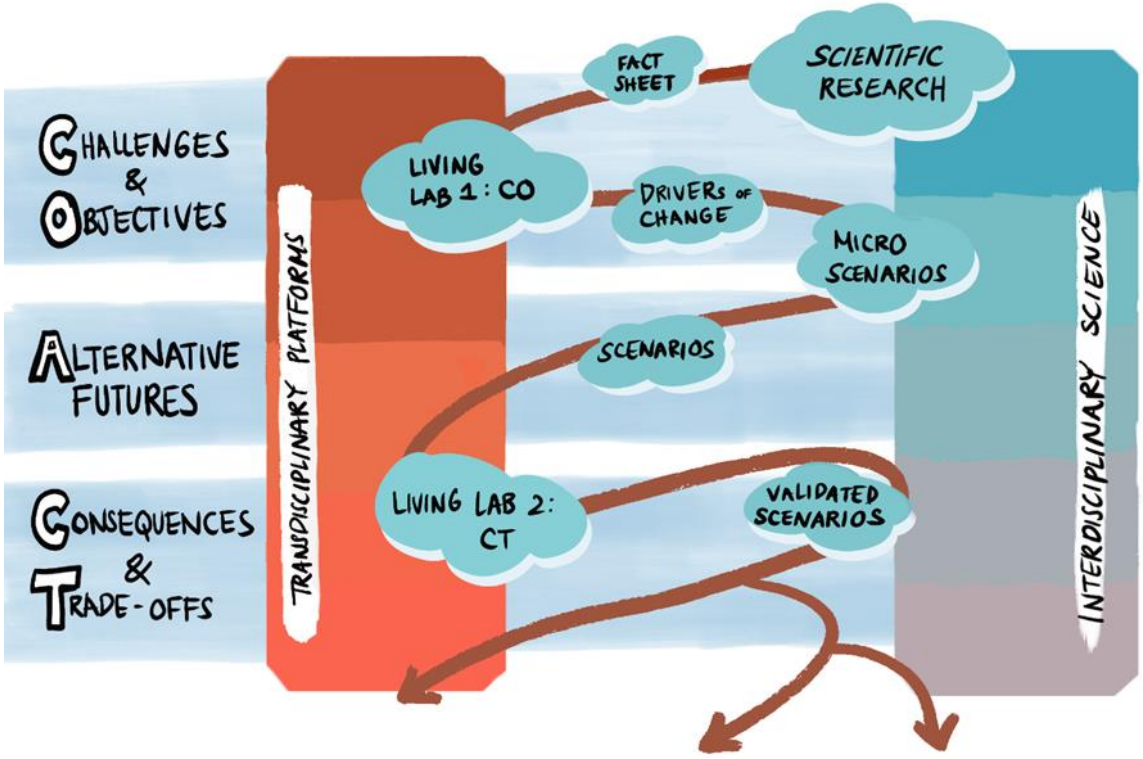


Figure 2: Overview of the CO-ACT methodological process.

1.3. The Zero Pollution Parliament Participants & Agenda

The Zero Pollution Parliament brought together a diverse group of stakeholders from across Europe, including policymakers, researchers and representatives from industry and private sector, Regional Sea Conventions, EU institutions and non-governmental organisations (see Table 1). In total, 33

stakeholders participated in the Zero Pollution Parliament Living Lab, reflecting a balanced mix of expertise across science, policy, industry, and civil society.

Group Photo at Zero Pollution Parliament, Brussels, November 2025

Table 1: Zero Pollution Parliament Participants by Stakeholder Group and Represented Organisations.

STAKEHOLDER GROUP	REPRESENTED ORGANISATIONS
Research Institutes & Universities	CEFAS (UK); GRID-Arendal (Norway); Hellenic Centre for Marine Research (HCMR/Greece); Institute of Chemistry (Slovenia); Institute of Fisheries and Oceanography (IOR/Croatia); Institute of Oceanology - BAS (Bulgaria); Italian Institute for Environmental Protection and Research (ISPRA) (Italy); Technical University Varna (Bulgaria); TIHO Hannover (Germany); University College Cork (UCC/Ireland); University of Patras (Greece); VLIZ (Belgium)
Industry & Private Sector	Black Sea Advisory Council (Romania); Bureau Veritas Solutions Marine & Offshore (France); Lomartov SL (Spain); Marine Cluster (Bulgaria); MedPharmPlast (Belgium); Plastics Europe (Belgium); SEICHE (UK)
NGOs & CSOs	ACR+ (International Network of Cities and Regions) (Belgium); Coalition Clean Baltic (Sweden); European Environmental Bureau (Belgium); European Marine Board (Belgium); Mare Nostrum NGO (Romania); Stichting Tegengif (Netherlands)
Regional, European & National Policy and Decision Makers	DG CLIMA (Belgium); DG GROW (REACH Unit) (Belgium); DG MARE (Belgium); Dutch Water Authorities (Netherlands); HELCOM (Finland); Italian Ministry of Environment and Energy Security (Italy)

Gender representation was broadly balanced, with 18 female and 15 male participants. The stakeholder group encompassed 16 European countries, bringing together diverse perspectives across

regional, national, and governance contexts to inform the discussions. This diversity strengthened the relevance, legitimacy, and applicability of the outcomes across European seas and policy settings. Discussions at the Zero Pollution Parliament were organised through structured breakout sessions across five thematic tables, conducted over four dedicated sessions (see Table 2).

Table 2: SOS-ZEROPOL2030 Zero Pollution Parliament Agenda.

Day 1	**18 November 2025**	
12:00 -13:00	Lunch @ Warwick Salon Grand Place	
13:00-14:15	Welcome & introductions	Kathrin Kopke
	Presentation: Pollutant profiles	Ben Boteler
	Presentation: Zero Pollution Scenarios	Judith van Leeuwen
14:15-15:45	**1st session: SWOT of scenario dimensions** *World café with cross-pollutant groups*	Judith van Leeuwen
15:45-16:15	Break	
16:15-17:00	**2nd session: Co-creating zero pollution scenarios** *Creative session, one for each pollutant*	Astrid Hendriksen
17:00-17.30	Plenary discussion about day 1	Judith van Leeuwen
19:00	Networking dinner at Strofilia Restaurant	

Day 2	**19 November 2025**	
08:45-9:00	Welcome	Thomais Vlachogianni
09:00-10:30	**3rd session: Brainstorming objectives, targets and actions for zero pollution** *World café with cross-pollutant groups*	Linda Del Savio
10:30-11:00	Break	
11:00-12:15	**4th session: priorities, timelines, trade-offs and actors for achieving zero pollution**	Ben Boteler
12:15-12:30	Closing session	Kathrin Kopke
12:30-13:30	Lunch @ Warwick Salon Grand Place	

Each table in the respective sessions was supported by a facilitator, who ensured that session objectives and tasks were clearly understood and discussions were effectively guided, as well as a designated note-taker responsible for capturing detailed records. These documented inputs provide the most significant contribution to this report and inform the development of the SOS-ZEROPOL2030 Strategic Zero Pollution Framework.

Zero Pollution Parliament participants were given the opportunity to comment and input on a near final draft version of this report and to provide feedback about the event through a post-workshop evaluation survey that was prepared and distributed via Typeform. 24 of the 33 event participants chose to take part in the event evaluation with evaluation results summarised in ANNEX 3 of this report.

2. SWOT ANALYSES OF ZERO POLLUTION SCENARIOS FOR EUROPEAN SEAS

The Zero Pollution Parliament breakout sessions started with a SWOT analysis of scenarios, developed in SOS-ZEROPOL2030 on marine pollution. This first session of the Zero Pollution Parliament Living Lab aimed to evaluate reactive versus proactive approaches and public versus private responsibility to achieve zero pollution in European Seas. An overview of the evaluated scenarios is illustrated below in Figure 3, with more detail provided in Annex 2.

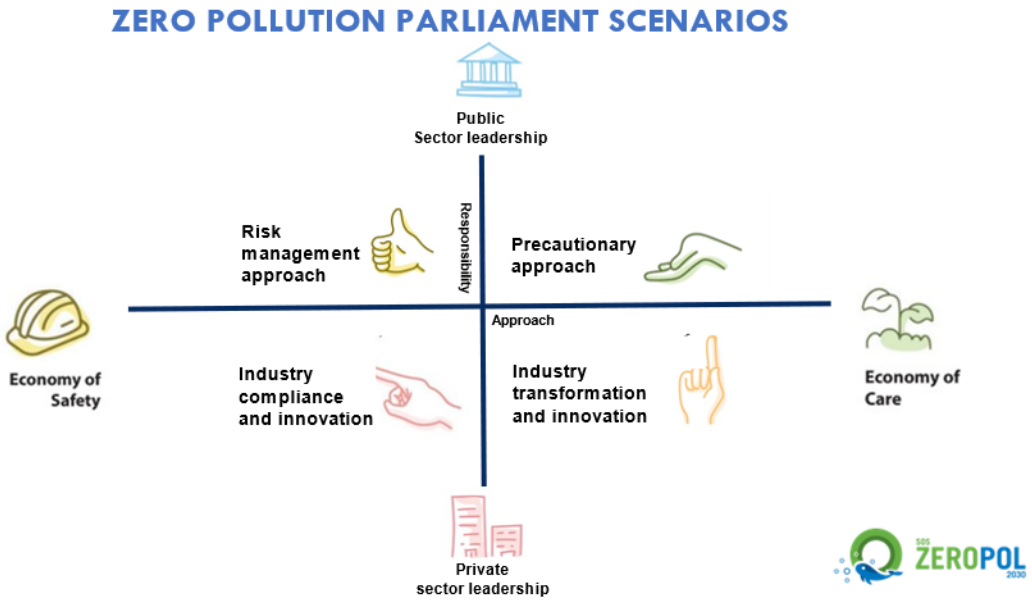


Figure 3: Illustration of the SOS-ZEROPOL2030 zero pollution scenarios.

Participants reflected on Drivers and Scales (see Figures 4 & 5) in discussions concerning the scenarios as identifying key drivers and considering the appropriate scale of action can help to translate diverse perspectives into coherent scenarios. In this context, drivers refer to the underlying governance logics shaping zero pollution pathways (e.g. proactive versus reactive approaches, or public versus private leadership), while scales refer to the level at which action and decision-making take place (local, national, EU or at Regional Seas level). This ensures that proposed pathways are relevant, comparable, and applicable across local, regional, and EU decision-making contexts. Figure 4 was used to aid considerations between proactive and reactive pathways to addressing marine pollution, where elements, such as the timing of intervention, planning horizon or extend and type of stakeholder engagement can highlight how early intervention, long-term planning, and precautionary measures differ from responses that act only after pollution has occurred. Considering drivers across local, regional, and EU scales illustrates how proactive and reactive approaches function under different governance contexts and levels of uncertainty, and how each can shape progress toward the EU's zero pollution objectives.

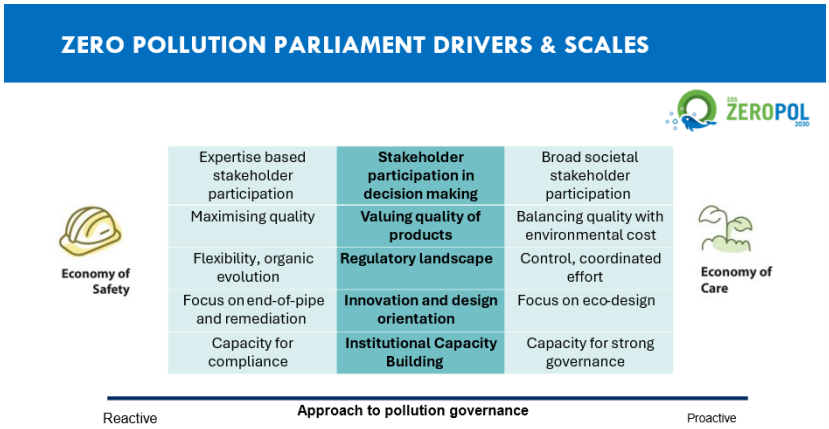


Figure 4: Illustration of the SOS-ZEROPOL2030 drivers and scales of reactive versus proactive governance in zero pollution scenarios.

Participants were asked to examine key drivers and scales of responsibility , more specifically the allocation of responsibility between public and private actors, and to explore how leadership by public authorities (e.g., through regulation, public procurement, monitoring, and strategic investment) differs from, and interacts with, private sector responsibility for product design, innovation, and value-chain management from their perspective (Figure 5). Rather than implying a linear increase or decrease in responsibility, this framing was intended to capture shifts in who takes the lead under different governance arrangements. Considering these roles across local, national, and EU levels was intended to further participant discussion towards assessing where public leadership is essential to ensure accountability, coherence, and long-term ambition, and where private sector action can deliver flexibility, innovation, and rapid implementation.

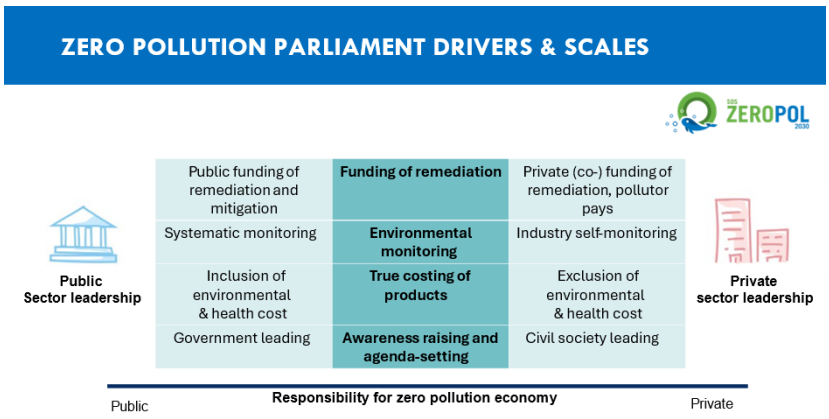


Figure 5: Illustration of the SOS-ZEROPOL2030 drivers and scales of public versus private sector responsibility in zero pollution scenarios.

2.1 SWOT Summary of Stakeholder Perspectives

Discussions at the Zero Pollution Parliament examined four scenarios for achieving zero pollution within the context of general marine pollution (Figure 3). Participants reflected on the scenarios from their perspective and brought their respective expertise to the discussions. Overall, stakeholders

emphasised that progress towards zero pollution requires a balanced policy mix that integrates prevention, regulation, innovation, and shared responsibility across sectors. Table 3 provides a summary overview of the stakeholder perspectives.

Table 3: Summary of stakeholder perspectives in SWOT exercise per Zero Pollution Scenario

APPROACH	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Economy of Care	Prevents pollution at source; aligns with EU precautionary principle; builds public trust; reduces long-term environmental and health costs; supports sustainability-driven innovation	High upfront costs; scientific uncertainty for emerging risks; complex assessment requirements; risk to EU competitive-ness if applied unevenly	Drives green innovation and high-quality jobs; embeds environmental responsibility in corporate governance; incorporates the full environmental and social costs of products into their market price supports Chemicals Strategy for Sustainability and Zero Pollution Action Plan	Reduced industry and public support if poorly communicated; risk of over-regulation; policy instability undermining long-term investment and innovation
Economy of Safety	Established legal frameworks; faster action for known risks; regulatory clarity for industry; effective for well-understood pollutants	Acts after pollution occurs; limited capacity to address emerging risks;	Incremental pollution reduction; stable markets; improved remediation where risks are clear; supports MSFD and REACH implementation	Delayed action leading to environmental and health damage; reputational and remediation costs; public trust erosion
Public Sector Leadership	Strong regulatory authority; democratic legitimacy; transparent monitoring and enforcement; policy coherence across sectors; EU global leadership potential	Slower decision-making; bureaucratic complexity; fragmented implementation across Member States; limited resources	Strategic public procurement; targeted innovation subsidies; harmonisation across EU; strengthened polluter-pays principle	Political cycles affecting continuity; risk of inefficient public spending; weak enforcement if priorities shift

Private Sector Leadership	Innovation capacity; operational efficiency; value-chain knowledge; ability to scale solutions rapidly; cross-border operations	Profit-driven short-term focus; uneven standards; limited transparency; reliance on self-regulation	Competition-driven innovation; investment in cleaner technologies; partnerships supported by EU policy incentives	Greenwashing; weak accountability without binding rules; market concentration; consumer cost increases and inequality

In this context, Table 3 emphasises that achieving the EU's zero pollution ambition for European seas requires more than technical solutions alone; and that coherent policy frameworks, long-term vision, and shared responsibility across public authorities, industry, and society are needed. Discussions at the Zero Pollution Parliament highlighted the complex trade-offs involved in preventing, managing, and reducing marine pollution, particularly in the context of emerging risks, economic competitiveness, and social acceptance. By examining different governance and economic approaches, stakeholders explored how existing EU policies such as the European Green Deal, the Zero Pollution Action Plan and legislation such as the Marine Strategy Framework Directive (MSFD) could be better aligned to policy instruments such as the Chemicals Strategy for Sustainability to support effective, timely, and equitable action.

2.2 Summary Conclusion per Scenario

A proactive "economy of care" approach strongly aligns with the EU's precautionary principle and the Chemicals Strategy for Sustainability. By prioritising early risk assessment, pollution prevention, and long-term planning, this approach supports the EU objective of preventing harm at source rather than managing impacts after they occur. While offering significant benefits for environmental protection, innovation, and public trust, its effectiveness depends on regulatory certainty, sustained political commitment, and measures to maintain EU industrial competitiveness.

A reactive "economy of safety" approach, which underpins much of the current EU regulatory framework, reflects risk-based management under legislation such as REACH and the MSFD. Stakeholders recognised its effectiveness in addressing well-known pollutants and providing regulatory clarity for industry. However, reliance on this approach alone risks acting too late on emerging pollutants, potentially undermining the Zero Pollution Action Plan's ambition to prevent pollution rather than remediate it.

Public sector leadership was identified as central to delivering EU policy objectives through legislation, public procurement, monitoring, and strategic investment. Strong governance, transparency, and coordination across Member States are essential to ensure policy coherence, reduce fragmentation, and uphold the polluter-pays principle. Public leadership also enables the EU to demonstrate global environmental leadership while safeguarding human health, biodiversity, and societal wellbeing.

Private sector leadership plays a critical role in delivering innovation, scaling solutions, and implementing pollution reduction across value chains. When guided by clear and predictable EU policy signals, the industry and private sector can support circular economy goals and contribute to sustainable growth. However, stakeholders stressed that voluntary action alone is insufficient; binding

standards, transparency, and accountability mechanisms are needed to ensure alignment with EU zero pollution objectives.

The SWOT exercise of the SOS-ZEROPOL2030 Scenarios emphasised that achieving the EU's zero pollution ambition for European seas will require an integrated governance model. Stakeholder perspectives highlighted that such a model must combine precautionary prevention, effective risk management, strong public leadership, and responsible private sector engagement, underpinned by long-term policy coherence, cross-sector collaboration, and sustained stakeholder involvement. This first session set the scene for subsequent sessions that took place with the invited stakeholder experts in the specific break out groups for the four pollutants, alongside a fifth group examining all four priority pollutants together to provide a cross-pollutant perspective.

3. SUMMARY OF THE PREFERRED SCENARIOS

In the second session of the Zero Pollution Parliament Living Lab, participants explored preferred scenarios for reducing each specific priority pollutant in European seas, engaging stakeholders to assess realistic and aspirational pathways. Discussions focused on nutrients, hazardous substances, microplastics, and underwater noise, while also considering cross-pollutant interactions. Participants evaluated governance, regulatory, economic, and behavioural factors, considering barriers and drivers of change with the aim of providing perspectives and input towards the development of the SOS-ZEROPOL2030 Zero Pollution Framework and Roadmap.

Overall, the preferred scenario envisions a progressive, data-driven approach that combines monitoring, operational improvements, and stakeholder engagement. By integrating public oversight with industry participation, supporting incremental regulatory development, and fostering awareness and incentives, this approach provides a practical pathway to reduce environmental pressures while enabling coordination, adaptability, and long-term improvements across marine sectors. The preferred scenarios per breakout group are summarised in the following subsections below.

Photo of participants exploring different axes of the scenarios

3.1 Nutrients

Discussions on nutrient pollution emphasised land-based sources, particularly diffuse agricultural inputs. Stakeholders identified key challenges including governance misalignment, weak implementation and enforcement, data gaps, economic and behavioural barriers, and limited institutional capacity. Drivers of future outcomes included climate change, market and regulatory pressures, and evolving societal expectations. The consensus highlighted the CAP as the primary lever for systemic change. Fundamental CAP reform was seen to be needed through shifting subsidies from area-based payments to outcome-oriented incentives and in order to promote nutrient-efficient and sustainable farming practices. Stakeholders highlighted that public leadership is critical, using monitoring, precautionary principles, and financial incentives to drive proactive behavioural change, close data gaps, and improve water quality and ecosystem health.

3.2 Hazardous Substances

For hazardous substances, scenarios contrasted precautionary, proactive approaches with more incremental, reactive management. The preferred vision emphasised the essential-use principle, safer and sustainable by design innovation, rigorous data requirements, and public–private collaboration for monitoring and innovation. Stakeholders recommended fast-tracking safer alternatives, embedding the polluter-pays principle, and enhancing public awareness. Stakeholders highlighted that more realistic approaches are needed that allow taking a stepwise path, accepting incomplete data and slower reductions, while using sector feedback and gradual implementation to manage hazardous substances are required.

3.3 Microplastics

Microplastic discussions reinforced the need for a balanced governance framework integrating proactive and reactive measures. Key elements included public oversight, private sector engagement, precautionary risk management, stakeholder participation, and transparent monitoring. Scenario design aimed to balance environmental and economic considerations, encourage sustainable product design and innovation, and promote societal awareness and responsibility. Public-led monitoring, shared costs, and continuous adaptation were highlighted as critical for long-term effectiveness.

3.4 Underwater noise

Stakeholders focused on shipping-related underwater noise, emphasising realistic yet ambitious measures. Key actions included dual-level monitoring networks, vessel and port optimisation, awareness-raising, and incremental regulatory progress. The preferred scenario stressed data-driven, cross-sectoral governance, acknowledging that behavioural change requires incentives, guidance, and phased implementation.

3.5 Cross-Pollutants

Participants acknowledged that multiple pollutants interact in complex ways, requiring integrated, multi-pollutant approaches. Suggesting the butterfly model (see Figure 6), stakeholders considered intersections between nutrients, chemicals, microplastics, and underwater noise and concluded that effective governance relies on balanced positions across proactive–reactive and public–private axes, combined monitoring and data integration, precautionary decision-making, and mixed public–private funding. Public leadership remains essential to coordinate action and ensure cumulative impacts are addressed.

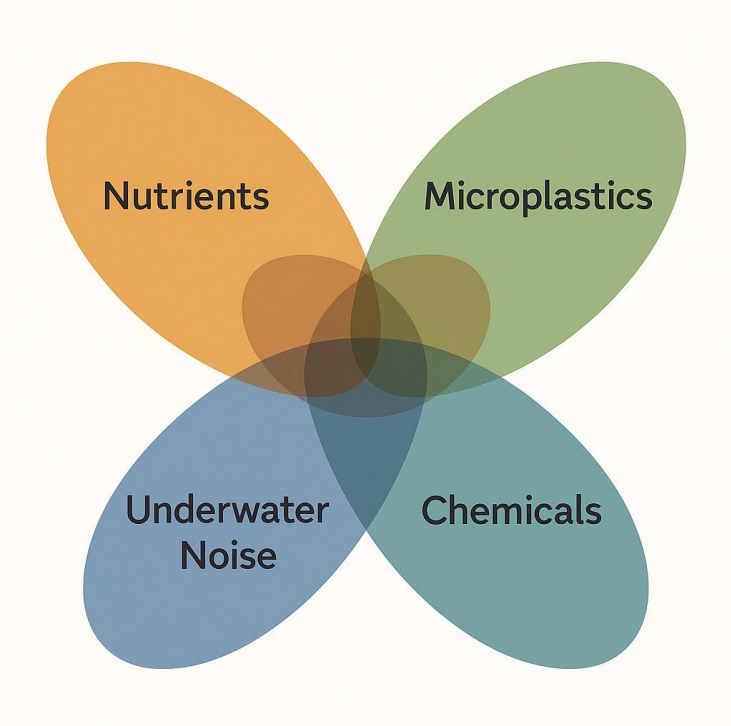


Figure 6: Stakeholder led graphic depiction of the butterfly model to highlight the intersections between nutrients, chemicals, microplastics, and underwater noise at the Zero Pollution Parliament.

4. RECOMMENDATIONS

Across two break-out sessions on the second day, recommendations converged on the need to move from fragmented, pressure-specific responses toward coordinated, preventive, and outcome-oriented action. While each pollutant requires tailored measures, common themes emerged such as prioritising source reduction, strengthening monitoring and data systems, aligning economic incentives with environmental objectives, and reinforcing public leadership while engaging private actors. The following subsections present recommendations structured by each specific pollutant and the cross-pollutant category.

Photo of participants working in breakout sessions

4.1 Nutrients

Objective: Reduce nutrient pollution at source, prevent leakage into water bodies, and recover excess nutrients from overloaded systems, while supporting a transition to sustainable agricultural practices.

Key Recommendation Areas:

1. **Circular nutrient management and innovation**
   - Promote the production of fertilisers from waste streams (e.g. biowaste, wastewater sludge) to reduce overall nutrient release and dependence on mineral fertilisers.
   - Link the mandatory use of compost from 2026 with a reduction in the use of mineral fertiliser.
   - Support the uptake of slow-release fertilisers to minimise nutrient losses to soil and water.
   - Encourage the use of microalgae and shellfish-derived products as components of fertilisers, contributing to nutrient recovery from aquatic systems.
   - Invest in biological and bio-based technologies that combine remediation and nutrient recovery in areas with nutrient overload, with deployment targets by 2040.

2. **Nature-based prevention and ecosystem restoration**
   - Maintain and restore the natural flow of rivers and vegetation on riverbanks as preventive measures against nutrient leakage, with additional benefits for microplastic retention and increasing biodiversity.
   - Prioritise restoration of riverine and wetland habitats to function as natural nutrient buffers.
   - Implement nature-based solutions as standard measures in water and nutrient management policies.
   - Begin restoration efforts on publicly owned land along rivers to accelerate implementation and demonstrate best practices.

- Deliver additional environmental benefits, including the reduction of other pollutants beyond nutrients.

3. **Spatial targeting and environmental objectives**
   - Prioritise action in Nitrate Vulnerable Zones, achieving full implementation of preventive and restorative measures by 2035.
   - Extend measures to all remaining river zones by 2040.
   - Establish basin-specific target values for nitrogen concentrations in seawater by 2030, ensuring coherence between land-based actions and marine protection objectives.

4. **Agricultural transition and stakeholder engagement**
   - Actively engage farmers in the transition to agro-ecological practices, supported by:
     - Dedicated advisory services and counselling,
     - Clear, region-specific business models demonstrating economic viability.
   - Strengthen stakeholder engagement between the biowaste treatment sector and the agricultural sector to improve nutrient recycling and uptake of recovered fertilisers.

5. **Policy instruments and funding**
   - Use the CAP as the primary funding mechanism for implementation.
   - In the short term, restructure CAP subsidies to explicitly reward agricultural practices that reduce nutrient input and leakage.
   - Align subsidy eligibility with participation in nutrient reduction measures, restoration activities, and circular nutrient use.

Overall recommendation: The proposed measures aim to prevent nutrient pollution at source, capture unavoidable losses through natural and engineered systems, and close nutrient cycles through innovation and reuse. By combining CAP reform, nature-based solutions, and farmer engagement within clear timelines and spatial priorities, the strategy seeks to deliver measurable reductions in nutrient pollution while strengthening ecosystem resilience and agricultural sustainability.

4.2 Hazardous substances

Objective: Significantly reduce emissions of hazardous substances, prevent future contamination, and address legacy pollution through precautionary, innovation-driven, and fair regulatory frameworks.

Key Recommendation Areas

1. Phase-Out and Prevention

- Phase out manufacturing, import, and use of the most harmful substances.
- Prioritise phase-out for non-essential uses, with clear essential-use criteria and timelines to enable orderly industrial transition.

2. Innovation and Safe Substitutes

- Invest public funding in basic and applied research for benign alternatives.
- Require companies using hazardous substances to invest in alternative development, individually or collaboratively.

- Establish an insurance-based mechanism to share risks and rewards, enabling a proactive application of the polluter-pays principle.
- Implement Safe and Sustainable by Design (SSbD), focusing on full product lifecycles to avoid low-quality outcomes.
    - Provide clear SSbD guidance, allowing iterative refinement based on early experience.
    - Create a fast process for the listing of Substances of Very High Concern (SVHCs).
    - Create a fast track for approval of alternatives to SVHCs under REACH and for candidates for substitution under the BPR, which would stimulate the quick development of significantly safer alternatives.

3. Remediation and Legacy Pollution

- Ensure availability of effective remediation technologies for legacy pollution, especially for waste, wastewater, recycling, and drinking water operators.
- Focus remediation programmes on geographical hotspots, particularly for low-mobility substances.
- Invest in wastewater treatment technologies for emerging industrial activities, such as renewed mining operations.

4. Data, Monitoring, and Capacity

- Identify critical data gaps for risk assessment and ensure monitoring programmes address them using Plan–Do–Check–Act (PDCA) continuous improvement approaches.
- Establish large-scale monitoring systems using harmonised methods, supported by AI and machine learning.
- Develop composite indicators for chemical pollution that are accessible to non-experts.
- Build national capacity for dossier evaluation and create learning communities for companies and regulators.

5. Market Conditions and Incentives

- Ensure a level playing field within and beyond the EU.
- Use public procurement to stimulate SSbD implementation.
- Enable secure data sharing across value chains, building on platforms such as REACH-IT.
- Support sharing platforms that reduce product ownership and production volumes, thereby lowering emissions.

Overall recommendation: The recommended approach for hazardous substances focuses on preventing pollution at source through the phased removal of the most harmful chemicals, while accelerating the transition to safe and sustainable alternatives. This includes prioritising the phase-out of non-essential uses, investing in innovation and remediation technologies, and embedding SSbD principles across chemical lifecycles. Public and private actors share responsibility for funding innovation, monitoring, and legacy pollution management, supported by robust data systems, transparent indicators, and strengthened national capacity. By combining precautionary regulation,

targeted investment, and fair market conditions, the strategy aims to reduce environmental and health risks while enabling innovation and ensuring a level playing field across the EU.

4.3 Microplastics

Overall Objective: Prevent and reduce microplastic emissions across product lifecycles, infrastructure systems, and consumer use.

Key Recommendation Areas (by Source)

1. Tyre Wear Particles

Objective: Minimise tyre wear particle (TWPs) emissions into water.
Target: By 2036, all new tyres in the EU market comply with eco-design standards.
Actions:

- Improve road infrastructure to reduce tyre abrasion, considering materials used in construction.
- Implement roadway traps, vehicle retention systems, and road-cleaning operations.
- Promote smart driving techniques to reduce tyre friction, adapted to vehicle and tyre types.
- Enhance traffic management in urban areas to reduce microplastic emissions.
- Expand rail infrastructure to encourage a modal shift away from road traffic.

Actors: Industry (tyre manufacturers), local authorities (road maintenance), regulators.

2. Wastewater Treatment and Sludge

Objective: Minimise microplastic emissions from wastewater.
Target: By 2035, improve wastewater treatment plants (WWTPs) and set limits for microplastics in sludge used in agriculture.
Actions:

- Upgrade WWTP infrastructure and adopt nature-based solutions where feasible.
- Monitor microplastics in sludge and enforce restrictions for agricultural applications.
- Promote adoption of Ecosystem-Based Management Systems (EBMS), linked to subsidies or incentives.

Actors: WWTP operators, public authorities, regulators, industry (if applicable).

3. Plastic Pellets

Objective: Minimise pellet loss during production, transport, and handling.
Target: 30% reduction in pellet loss by 2030.
Actions:

- Identify operational vs. transport-related sources of pellet loss.
- Implement preventive measures, such as air bags in containers to recover lost pellets.
- Develop fingerprinting techniques to trace pellet origin and assign accountability.

- Adjust transport methods (local production, limit water transport) and improve handling procedures.

Actors: Industry, regulators, supply chain operators.

4. Textiles

Objective: Reduce microplastic emissions from textile washing and drying.
Target: By 2035, 50% of new washing and drying machines equipped with microplastic filters.
Actions:

- Support research into alternative fibres and plastics that minimize microplastic release.
- Increase consumer awareness of fast fashion impacts and sustainable consumption.

Actors: Industry (textile producers, appliance manufacturers), consumers, regulators, NGOs.

5. Coatings and Industrial Applications

Objective: Reduce microplastic emissions from paints, coatings, and industrial surfaces.
Actions:

- Promote development of durable, sustainable coatings with minimal degradation.
- Explore alternative surfacing technologies for cars, ships, new builds, and industrial applications.
- Apply programmable biodegradability selectively, prioritizing material recovery.

Actors: Industry (coatings manufacturers), regulators, research institutions.

6. Fertilisers and Agriculture

Objective: Reduce microplastic emissions from fertilisers and soil.
Actions:

- Investigate sources of microplastics in fertilisers and soil.
- Align mitigation strategies with climate-driven changes in crops and farming systems.
- Encourage research into nature-based solutions for agricultural microplastic mitigation.

Actors: Farmers, agricultural industry, regulators, NGOs, research institutions.

7. Cross-Cutting Actions

- Apply proactive legislation (e.g., EcoDesign Directive) covering full product lifecycle, including use phase.
- Cap overall plastic use to force recycling and reduce emissions.
- Enforce existing restrictions on intentionally added microplastics.
- Improve supply chain transparency, especially for industrial plastics.
- Promote innovation in material design, product lifecycles, and emission reduction.
- Integrate circular economy principles: recycling, repair, reuse, and extension of product lifecycles.

- Engage broad stakeholder groups: government, industry, civil society, NGOs, consumers.
- Raise awareness about microplastic sources, consumer behaviour, and environmental impact.
- Consider funding mechanisms, subsidies, and differentiated approaches for developing regions.

Overall Recommendation: The recommended approach for microplastics centres on preventing emissions across the full product lifecycle, combining proactive regulation, improved infrastructure, and targeted innovation. Priority actions include eco-design requirements for products and vehicles, upgrades to wastewater treatment, improved road and transport systems, and stricter controls on industrial plastic losses. These measures are complemented by circular economy strategies, enhanced supply chain transparency, and sustained stakeholder engagement, including industry, public authorities, and consumers. Through integrated monitoring, shared responsibility for costs, and awareness-raising initiatives, the approach aims to achieve measurable reductions in microplastic emissions while supporting innovation, fairness, and long-term environmental protection.

4.4 Underwater noise

The comprehensive discussion to reduce underwater noise, centred on three main pillars, which align with the International Maritime Organization (IMO) strategy for addressing underwater noise from shipping and are centred around raising awareness and capacity building, a shipping noise index, and baseline measurement systems.

Key Objectives:

- To significantly reduce underwater noise from shipping and other vessels.
- To establish consistent Underwater Noise monitoring infrastructure.
- To integrate underwater noise awareness into maritime training and ship design.
- To ensure shared responsibility between public, private, and international actors.

Recommendation Areas (per identified Pillar of focus):

1. **Pillar: Awareness and Capacity Building:** This pillar focuses on increasing understanding of underwater noise across the maritime sector and building the skills needed to address it.

Key actions include awareness campaigns, integrating underwater noise into maritime education and professional training, and ensuring that crew certifications and operational procedures reflect best practices to help create a shared culture of responsibility and informed decision-making.

Timelines & Actions:

- **2025–2027:** Early awareness campaigns, mandatory training modules, and educational content (e.g., documentaries) as part of career development in maritime sectors as well as ship design
- **2027 onward:** Technical training for engineers and maritime personnel is integrated into qualifications for maritime sectors and boating licences.
- **2030 onwards:** Consumer engagement is enhanced through transparent information on the environmental performance of maritime transport, presented as part of a combined, comprehensive environmental labelling approach. This could include QR-coded labels on imported products and international deliveries to allow consumers to see whether their goods were transported by quieter vessels, while also integrating information on reduced GHG

emissions to align with and build upon existing environmental labelling initiatives. Similarly, cruise ships, passenger vessels, and ferries could provide on-board displays or short videos showcasing their efforts to reduce underwater radiated noise alongside other green measures, creating a single, unified message on environmentally friendly maritime transport. This integrated approach aims to strengthen public awareness, enable informed choices, and clearly communicate the sector's commitment to greener, quieter passenger and goods transport.

2. **Pillar: Noise Ship Index (Port-Driven Action):** A Noise Ship Index is an independent tool to rate and reward ships that reduce underwater noise, in line with International Maritime Organization (IMO) recommendations.

Key actions include EU Ports to incentivise quieter vessels through lower fees and shorter waiting times. Effective implementation depends on strong cooperation and alignment of actions across ports. The index is linked to ship design features, performance, and data reporting and emphases linking underwater noise to greenhouse gas mitigation to leverage existing frameworks.

Timelines & Actions:

- **2029:** 30% of EU which include the national primary ports in EU countries adopt a noise ship index within their environmental programs.
- **2040:** expanded to 60% of EU ports adopting the index.
- **2050:** 100% of EU ports adopting the index.

3. **Pillar: Baseline Measurement & Monitoring Network:** This pillar aims to establish a robust, harmonised system for measuring underwater noise across European waters.

Actions include deploying monitoring stations in high-traffic and priority areas, standardising data collection methods, and ensuring shared responsibility among ports, vessel operators, and national authorities. A key goal is to establish a baseline at least 30% of vessels (including fishing vessels) by 2035, creating a reliable evidence base to guide future regulation, support vessel-level improvements, and track progress toward long-term noise reduction targets.

- Establish monitoring stations in high-traffic areas with shared cost models (public and private).
- 2035: 30% of vessels (including fishing vessels) to be baselined for noise emissions.
- Address gaps in military and non-commercial vessel data.
- Ensure reliable data upload, harmonised standards, and improved communication between stations.

Targets & Timelines Agreed Across Sessions

Stakeholders recommend focusing on large contributors ("the loud actors") and major ports to establish quiet zones by 2026. These targets should be reached through a combination of ship design and slower shipping.

- 2 dB underwater noise reduction by 2030 (with consideration of a more ambitious 3 dB).
- 6 dB total reduction by 2050.

- Integrate noise considerations into ship design processes starting 2030–2035.

Overall Recommendation: The recommended approach for addressing underwater noise emphasises awareness, coordination, and progressive improvement across the maritime sector. Key actions include strengthening education and training to address behavioural barriers, establishing a harmonised European noise index to support port-based incentives, and accelerating the deployment of coordinated monitoring infrastructure to ensure reliable and comparable data. These measures are complemented by incentives for quieter ship design, greater transparency through the integration of noise metrics into environmental performance reporting and sustained international engagement to align EU action with global maritime frameworks. Together, this approach supports measurable noise reduction while maintaining competitiveness and coherence across European and international shipping activities.

4.5 Cross pollutants

Key Objectives:

- to develop a more integrated, ecosystem-based approach where the ecosystem, assessed through keystone indicator species, is the primary unit of analysis
- to shift from single-substance risk assessment to poly-pollutant risk assessment, reflecting real-world exposure to mixtures of pollutants and multiple stressors.

Further objectives:

- to create greater transparency through international and European databases,
- to develop product- and material-level indicators (such as recyclability and chemical inertia)
- to establish cross-cutting cooperation between health and environmental institutions to overcome silo thinking
- to implement stronger and more consistent EU-level enforcement

Proposed Measures and Actions:

To operationalise these objectives, five priority action areas were defined:

- Use of **Indicator Species** to assess ecosystem health and identify stressors affecting biodiversity and environmental quality.
- **Development of Poly-Pollutant Risk Assessment Tools,** inspired by medical risk models and the Planetary Boundaries Framework, to assess combined exposure and effects.
- **Expansion of International and EU Databases,** building on existing platforms such as WISE and the upcoming EU chemicals database, supported by software tools to track substances in products and materials.
- **Strengthening National-Level Cooperation through Cross-Cutting Agencies,** integrating health and environmental expertise within shared regulatory processes (with examples such as the Dutch National Institute for Public Health and the Environment (RIVM) highlighted as best practice).
- **Additional EU Enforcement Measures,** including monitoring, certification, and sanctioning, using existing legislative frameworks.

Supporting actions include improving data transparency (particularly from industry), developing shared definitions and thresholds for multi-factor exposure, investing in national-level capacity building, and addressing institutional fragmentation through coordinated governance.

Targets Agreed Across Sessions

A phased timeline was agreed:

- **By 2030:**
  - Structural cooperation between health and environmental sectors established.
  - Core transparency systems, indicators, and databases set up.
  - Poly-pollutant risk assessment frameworks initiated.
  - Coordination mechanisms between EU and national levels operational.

- **By 2040:**
  - Fully operational poly-pollutant risk assessment in policy and regulation.
  - Comprehensive and publicly accessible data infrastructure.
  - Effective enforcement in place, including monitoring, certification, and sanctions.

Overall Recommendations: Participants concluded that achieving zero pollution requires a systemic transformation rather than isolated technical fixes. Priority should be given to integrating health and environmental governance, strengthening scientific understanding of multi-pollutant exposure, and ensuring full transparency through shared data systems. Robust EU-level enforcement, supported by well-resourced national authorities, is critical to ensure that objectives translate into real-world impact. Finally, sustained cooperation between governments, scientists, industry, and civil society is essential to balance ambition, feasibility, and societal acceptance on the path toward zero pollution.


Breakout Group & Sharing Discussion Results

5. SUMMARY

The Zero Pollution Parliament in Brussels (November 2025) combined evidence-based analysis with structured scenario discussions to explore pathways toward zero pollution in European seas. Participants examined proactive and reactive approaches, identifying trade-offs and opportunities while considering the complementary roles of public and private actors. For each priority pollutant group, stakeholders identified actionable priorities.

- **Nutrients**: prevent pollution at source, restore ecosystems, and align incentives with CAP reform.
- **Hazardous substances**: phase out non-essential chemicals, implement SSbD innovation, and strengthen monitoring and remediation.
- **Microplastics**: reduce emissions across product lifecycles, improve infrastructure, enforce eco-design, and enhance public awareness.
- **Underwater noise**: raise sectoral awareness, establish harmonised monitoring, incentivise quieter ship design, and align EU action with global frameworks.
- **Cross-pollutant** recommendations emphasised integrated, ecosystem-based governance, poly-pollutant risk assessment, transparent data systems, and coherent enforcement.

The Parliament reinforced that achieving zero pollution requires systemic, coordinated action, combining prevention, monitoring, policy coherence, and shared responsibility. Beyond technical measures, participants highlighted the need for adaptive, cross-sector approaches that account for emerging risks, cumulative impacts, and societal acceptance ensuring Europe's transition to a sustainable, zero-pollution marine environment. Public leadership, responsible industry engagement, and sustained stakeholder collaboration are essential. The findings of Zero Pollution Parliament feed directly into the development of the SOS-ZEROPOL2030 Zero Pollution Framework to guide the EU zero pollution policy ambition.

Exploring Scenarios & Sharing Discussion Results

ANNEX 1: ZERO POLLUTION PARLIAMENT INVITATION

A Source-to-Sea Approach for Shaping Europe's Marine Future

Welcome to the Zero Pollution Parliament!

The **Zero Pollution Parliament** is organized as part of the Source to Seas Zero Pollution 2030 (SOS-ZEROPOL2030) project. The aim of the 2-day event is to **bring together stakeholders** to discuss current challenges and opportunities for improving pollution governance within the EU, exchange knowledge, and build new networks. The event will apply an **interactive Living Lab approach** to foster information exchange between participants and feature action-oriented discussions. Considering a **source-to-sea perspective**, it is crucial for the Zero Pollution Parliament to identify diverse stakeholder groups that are critical to the design and implementation of policies to tackle pressing pollution challenges within the EU and its seas.

Objectives of the event

We aim to foster multi-stakeholder **discussion and exchange**, to identify and propose objectives, targets and actions for the SOS-ZEROPOL2030 **targeted pollutants** (nutrients, hazardous substances, microplastics, and underwater noise) and build a framework for **advancing action** towards the policy vision laid out in the EU Zero Pollution Action Plan, the European Green Deal and the European Ocean Pact.

SOS-ZEROPOL 2030 in a nutshell

The SOS-ZEROPOL 2030 project, funded through the EU's Horizon Europe Programme, seeks to develop a **holistic zero pollution framework** that will guide the EU towards achieving zero pollution in European seas by 2030. The stakeholder-led zero pollution framework will address shortcomings in existing marine pollution management and governance approaches. The project focuses on four priority pollutants: **nutrients, hazardous substances, microplastics, and underwater noise**. The project has examined in detail these two case study pollutants: per- and polyfluoroalkyl substances (PFAS) and tyre wear particles (TWPs). It addresses these issues across three **European Regional Seas**: the Black Sea, the Mediterranean Sea, and the North-East Atlantic.

SOS-ZEROPOL 2030 team

Zero Pollution Parliament

Factsheet

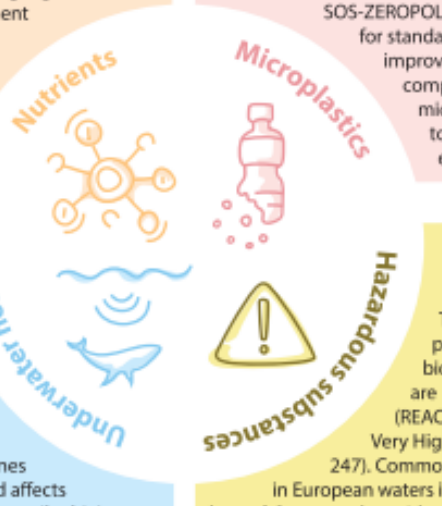
Pollutant profiles

SOS ZEROPOL 2030

Funded by the European Union's Horizon Europe programme under grant agreement No. 101060313.

Nutrient pollution is the excessive presence of nitrogen and phosphorus compounds in aquatic systems and has diverse and interconnected impacts on marine ecosystems, including eutrophication, harmful algal blooms, hypoxia, reduced biodiversity, and risks to human health and ecosystem services. Nutrients enter the environment through anthropogenic activities like agricultural and urban runoff, industrial discharge, and atmospheric deposition from sources including fossil fuel combustion and agricultural practices. The EU's Zero Pollution Action Plan aims to reduce nutrient losses by 50% and reduce ecosystems exceeding critical nitrogen deposition loads by 25% by 2030, but recent research from the SOS-ZEROPOL2030 project indicates these targets are challenging to achieve. Specifically, the Plan's target on nutrient losses is deemed unfeasible due to the complexity of nutrient cycles and difficulties in quantifying diffuse emissions, and current mitigation measures are projected to achieve only about a 20% reduction in ecosystems exceeding critical nitrogen loads. This highlights the need for improved measurement techniques and more effective strategies for sustainable nutrient management, as outlined in policies like the EU Biodiversity Strategy and Farm to Fork Strategy.

Microplastic pollution is a growing environmental concern, with current emissions estimated between 10-40 million tonnes annually and potentially doubling by 2040. These particles are often categorized as primary (where microplastics are intentionally manufactured for use in products) and secondary (where microplastics result from the breakdown of larger plastic items). Examples include textiles, tyres, paints, and plastic pellets, entering the environment through pathways like wastewater, runoff, and atmospheric deposition. The EU aims to reduce the release of microplastics by 30% by 2030, but achieving this goal faces significant hurdles. The current reduction target lacks clear quantitative metrics – and it is unclear whether the 30% refers to volume, mass, or particle number – hindering effective implementation and monitoring. Furthermore, substantial data gaps exist regarding the actual amount of microplastics entering the environment, making it difficult to accurately assess progress and the efficacy of policy interventions. A key assumption by the European Commission – that focusing solely on primary microplastics through regulations like REACH will be sufficient – remains unvalidated due to lack of environmental data on the relative contribution of these sources compared to others. These challenges, identified by the SOS-ZEROPOL2030 project, highlight the need for standardized measurement methods, improved data collection, and a more comprehensive understanding of microplastic sources and pathways to effectively address this growing environmental threat.



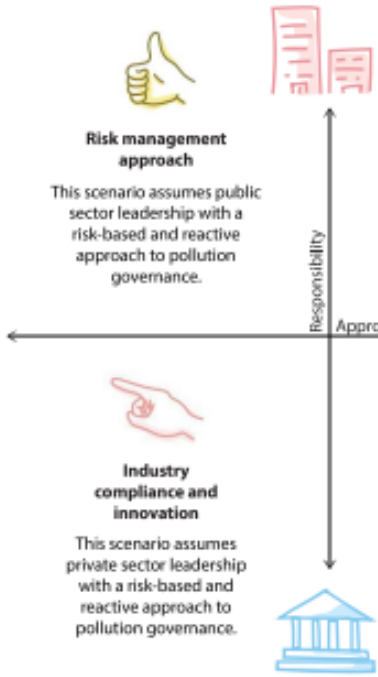
Underwater noise is sound introduced into the ocean by human activities such as shipping, offshore construction, seismic surveys, and naval sonar, which increasingly dominate over natural sounds from waves, wind, and marine life. It is broadly divided into continuous noise and impulsive noise: continuous noise, from ship engines and propellers, occurs persistently and affects large areas, while impulsive noise, from pile driving, explosions, or seismic airguns, consists of short, intense bursts that can travel great distances and cause immediate harm. Both types disrupt the natural ocean soundscape, interfering with marine species' communication, navigation, feeding, and breeding. As many rely on sound to sense their surroundings, excessive noise can lead to stress, disorientation, hearing damage, or habitat displacement. The issue's transboundary nature makes it difficult to monitor and manage, compounded by limited scientific understanding of environmental impact, lack of standardised methods to assess and monitor, and the need to balance economic activity with ecosystem protection. Recognised as a significant pollutant, underwater noise is addressed under the EU's Marine Strategy Framework Directive (Descriptor 11), which requires that noise should be kept at levels that do not adversely affect the marine environment to reach Good Environmental Status.

Hazardous substances pose significant risks to both human health and the environment. These chemicals exhibit properties such as persistence, bioaccumulation, and toxicity, and are classified under EU regulations (REACH & CLP) into 'Substances of Very High Concern' (currently numbering 247). Common chemical contaminants found in European waters include PCBs, lindane, and benzo[a]pyrene, alongside pesticides, pharmaceuticals, and metals. Exposure occurs through multiple pathways, including contaminated food and water, polluted air , and everyday products. The EU is actively working to reduce chemical pollution through ambitious targets like the Zero Pollution Action Plan and Chemicals Strategy for Sustainability, aiming for a 50% reduction in pesticide use and risk by 2030, and ultimately, safe chemical production and use by 2030, as part of the broader EU Green Deal. However, key challenges such as gaps in understanding the environmental behaviour and impacts of chemical contaminants, and lack of comprehensive monitoring and assessment frameworks impede effective policy design and implementation.

Funded by the European Union's Horizon Europe programme under grant agreement No.

Public sector leadership

Public sector leadership means that responsibility for a zero-pollution economy is primarily seen as a public sector responsibility, where policy targets are set and enforced, enabled by cross-sectoral oversight to link monitoring of ecosystems with public health and economic regulations. The private sector remains important for informing decisions and driving zero-pollution innovation.



Economy of Safety

Economy of Safety refers to a reactive approach towards pollution governance, where known risks are managed and use of hazardous substances can grow as long as risk is contained to acceptable levels.

Economy of Care

Economy of Care refers to a proactive approach towards pollution governance, where environmental and human health outcomes are prioritised if long-term hazard data is unavailable or inconclusive.

Private sector leadership

Private sector leadership means that responsibility for a zero-pollution economy is primarily seen as an industry and private sector responsibility, realised within a policy framework of objectives, various (regulated) market mechanisms, including corporate sustainability actions and extended producer responsibility. Within this policy framework, private actors self-fund and coordinate implementation, remediation and monitoring.

Drivers of Zero Pollution

Economy of Safety			Economy of Care
Expertise based stakeholder participation	**Stakeholder participation in decision making**	Broad societal stakeholder participation	
Maximising quality	**Valuing quality of products**	Balancing quality with environmental cost	
Flexibility, organic evolution	**Regulatory landscape**	Control, coordinated effort	
Focus on end-of-pipe and remediation	**Innovation and design orientation**	Focus on eco-design	
Capacity for compliance	**Institutional capacity building**	Capacity for precautionary decision-making	

Reactive ← **Approach to pollution governance** → Proactive

Public sector leadership			Private sector leadership
Public funding of remediation and mitigation	**Funding of remediation**	Private (co-) funding of remediation, pollutor pays	
Systematic monitoring	**Environmental monitoring**	Industry self-monitoring	
Exclusion of environmental & health cost	**True costing of products**	Inclusion of environmental & health cost	
Government leading	**Awareness raising and agenda-setting**	Civil society leading	

Public ← **Responsibility for zero pollution economy** → Private

ANNEX 3: ZERO POLLUTION PARLIAMENT SUMMARY OF PARTICIPANT EVALUATION

Please select the grouping your organisation is most closely affiliated with.

24 out of 24 people answered this question.

Choices	Responses	Percentages
Research Institute & University	8	33.3%
Industry & Private Sector	3	12.5%
NGO & CSO	8	33.3%
Regional, European & National Policy and Decision Maker	5	20.8%

Please rank the following from 1 most important for your purpose of attending the event to 5 least important for your purpose of attending the event ?

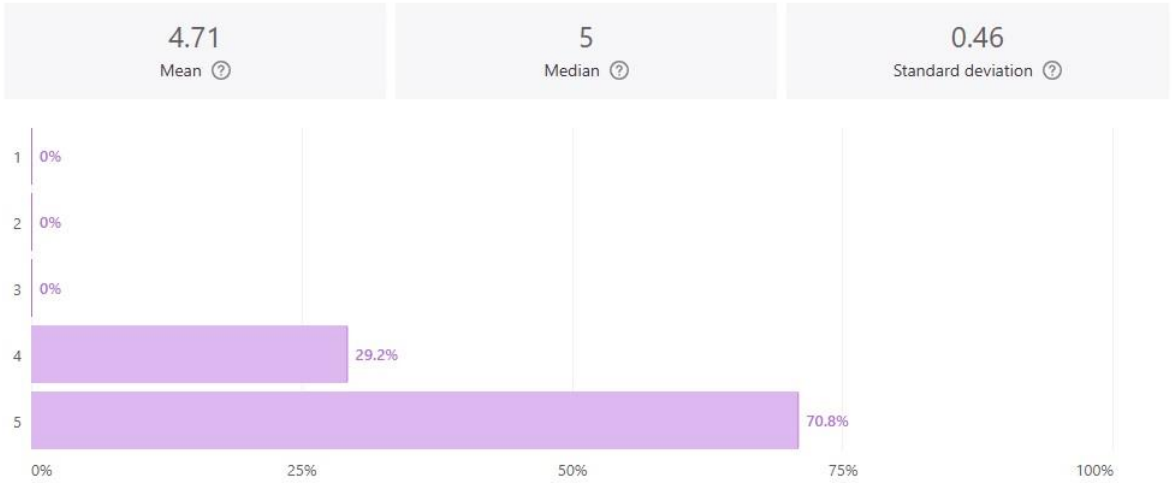
24 out of 24 people answered this question.

Highest ranked

1 Building shared understanding of all discussed priority pollutants	2.25 Mean
2 Networking and Knowledge Exchange	2.63 Mean
3 Developing Objectives, Targets and Actions for a specific pollutant	2.83 Mean
4 Learning about a specific type of pollutant	3.29 Mean
5 Professional Development	4 Mean

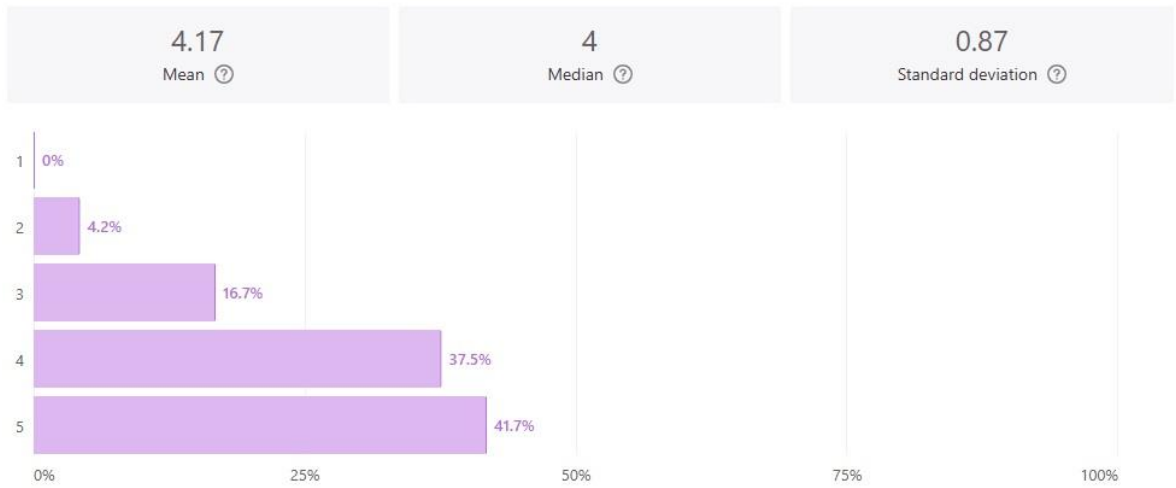
Please state the extent to which you agree or disagree with the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree): The duration of the event was right for me.

24 out of 24 people answered this question.



Please state the extent to which you agree or disagree with the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree): Workshop participation will support my engagement with people working in the same field.

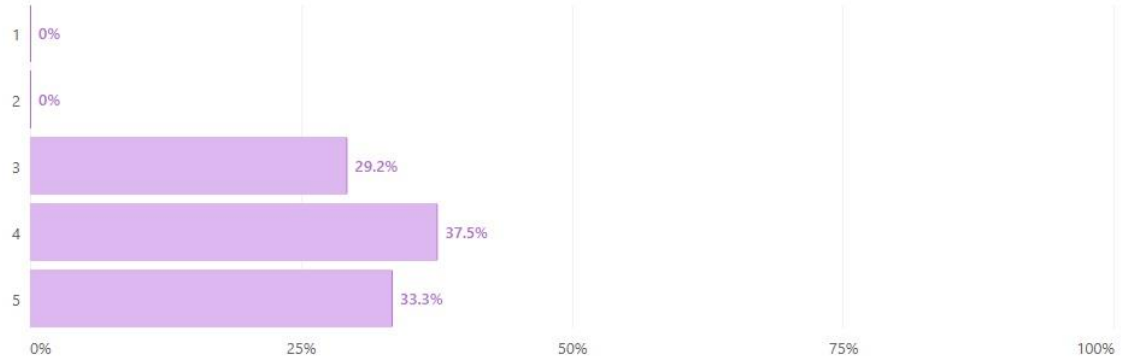
24 out of 24 people answered this question.



Please state the extent to which you agree or disagree with the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree): . Participation in this workshop will influence my future work.

24 out of 24 people answered this question.

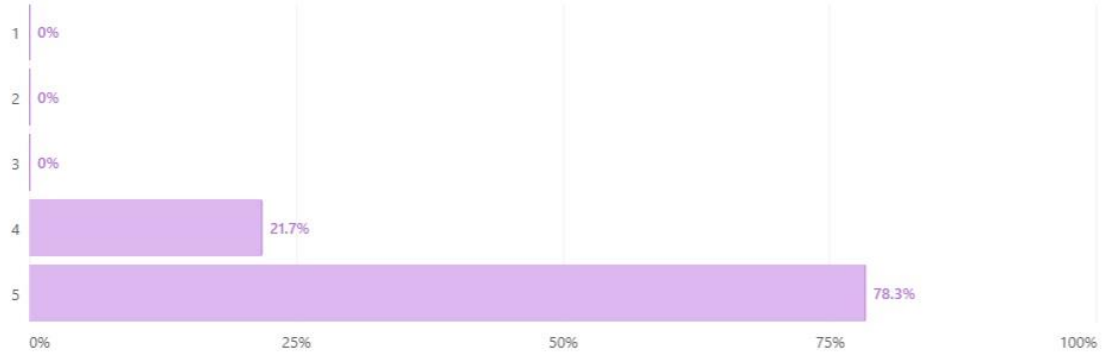
4.04	4	0.81
Mean	Median	Standard deviation



Please state the extent to which you agree or disagree with the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree): . The event was well organised.

23 out of 24 people answered this question.

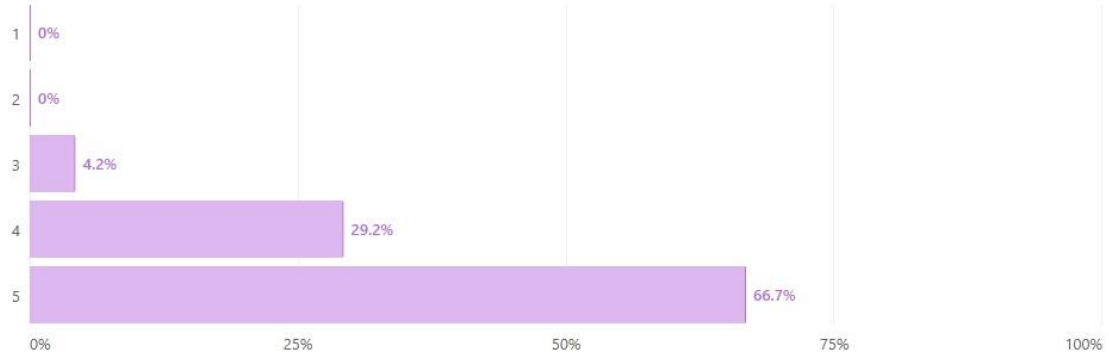
4.78	5	0.42
Mean	Median	Standard deviation



Please state the extent to which you agree or disagree with the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree): The presenters communicated information clearly.

24 out of 24 people answered this question.

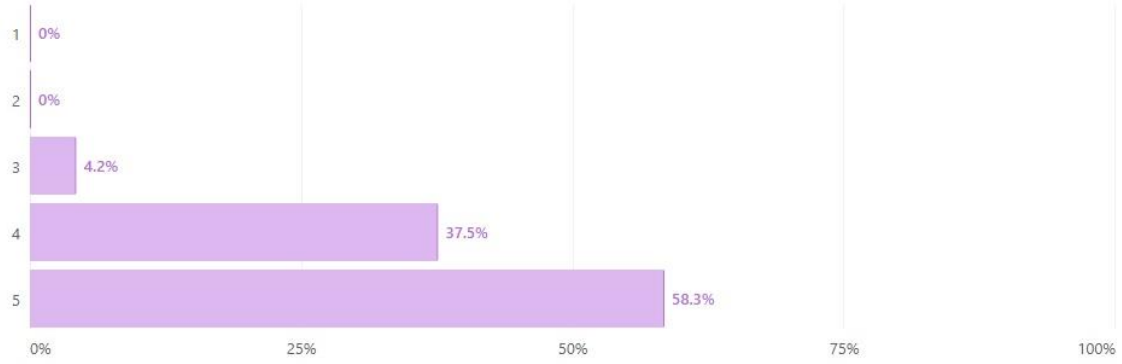
4.63	5	0.58
Mean	Median	Standard deviation

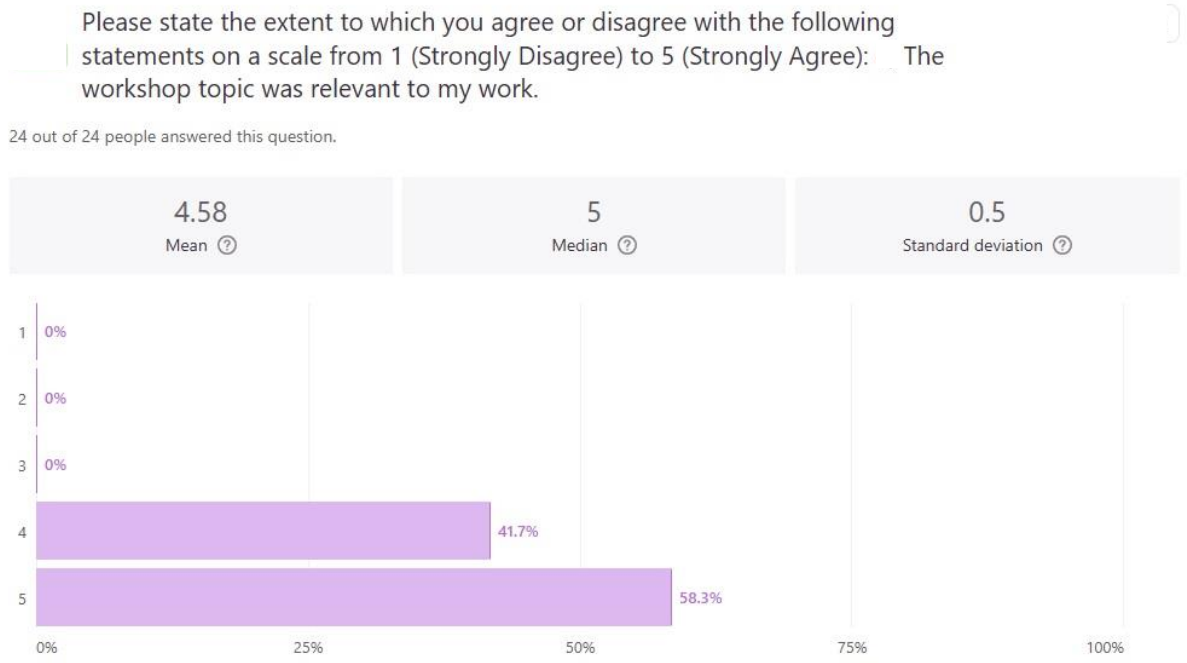


Please state the extent to which you agree or disagree with the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree): The presenters made the subject matter compelling.

24 out of 24 people answered this question.

4.54	5	0.59
Mean	Median	Standard deviation





Summary of open-ended responses on 'What aspect of the event did you like the best and why?'

Participants highlighted the value of the event's diverse and well-balanced stakeholder mix, which fostered rich discussions, fresh perspectives, and strong knowledge exchange across sectors and expertise areas. The combination of plenary sessions, technical breakout groups, and informal networking created an engaging and collaborative atmosphere, with sufficient time allocated for meaningful dialogue and brainstorming. Attendees particularly appreciated the opportunity to explore practical objectives, trade-offs, and solutions in a structured yet relaxed setting that encouraged both creative thinking and realistic target-setting, ultimately offering new insights into complex pollution challenges.

Summary of open-ended responses on 'What aspect of the event could be improved and how?'

Participants suggested that future events may benefit from more structured discussions and clearer guidance on expected group outcomes, while some participants would have preferred deeper exploration of specific topics. Some participants called for more time for brainstorming, reflection, and discussion and some suggested that smaller groups could be beneficial. Some participants highlighted that they would have preferred less frequent reshuffling of groups to allow ideas to develop more fully, and other participants noted that certain exercises overlapped with previous work undertaken in the regional living labs. The use of digital tools was suggested to help with engagement, particularly when energy level dipped towards the end of the event.

SOS ZEROPOL 2030

Funded by the European Union's Horizon Europe programme under grant agreement No.101060213.