



Scalable full-cycle marine litter remediation in the Mediterranean: Robotic and participatory solutions

SeaClear2.0

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Title: SeaClear2.0 stakeholder workshops
Co-design Activities for Tackling Marine Litter - Stakeholder Workshop in Samandağ, Türkiye
Project Partner: ISOTECH Ltd
Date: 18 February 2026

Grant Agreement no. 101093822

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The SeaClear2.0 stakeholder workshops

There is no one-size-fits-all solution to marine litter management. To design effective solutions to address marine litter, it is critical to understand local circumstances and take into account stakeholder perceptions. This approach is central to the work being implemented by the SeaClear2.0 project to tackle marine litter across Europe and the Mediterranean. Our partner, ISOTECH Ltd, is using its DeCyDe-4 decision support methodology, to implement workshops with stakeholders in 11 European and Mediterranean countries to identify site-specific marine litter problems, prioritise challenges, and co-design feasible interventions that reflect the local context.

The seventh workshop: Samandağ, Türkiye

The stakeholder workshop in Samandağ, Türkiye, on 18 February 2026, was the seventh SeaClear2.0 workshop to be implemented. It brought together a diverse group of 18 participants representing public authorities working at the regional and local level, civil society organisations, industry, and aquaculture and fisheries cooperatives. The group reflected the complexity of marine litter issues in Samandağ, sharing their views and perspectives on what the main sources of marine litter are, the pressures that it exerts on the marine and coastal ecosystem as well as the local economy, and the solutions that must be implemented to address the most pressing sources and impacts.

Local Insights: Marine Litter Challenges in Samandağ

Participants worked together to identify the main problems driving marine litter on the island. Their contributions highlighted the intertwined influences of natural processes and human activities, as well as the important issue of transboundary marine litter pollution:

1. Ghost nets and abandoned, lost or discarded fishing gear (ALDFG): Participants highlighted the importance of this marine litter source in Samandağ. Trawl fishing is an important economic activity in the area. Often, trawl nets get caught on the rocky seafloor and break off, where they become ghost nets. Mapping the location of these nets and collecting them in a safe and efficient way are key issues to be addressed.
2. Tyres used as fenders on boats: The seabed is heavily littered by car tyres, which are typically used as fenders on boats. Once in the marine environment these contribute to plastic and microplastic pollution.
3. Plastic waste transported from neighbouring countries and the city of Samandağ through the Asi (Orontes) River: One of the top concerns of the participants was riverine transport of litter, particularly plastics, through the Asi River. The river flows from Lebanon through Syria and Türkiye, where it reaches the Mediterranean Sea in Samandağ. As it flows, the river collects litter, which all washes up in Samandağ. According to the participants, the transboundary nature of this marine litter source is

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particularly difficult to address.

4. Plastic waste transported from neighbouring countries from the sea: The participants also noted that transboundary marine litter pollution also occurs from the sea, due to the action of Mediterranean Sea currents. As an indication of the extent of the problem, Samandağ municipality representatives noted that on the morning of the workshop, 50 cubic metres of litter were collected from the coastal area of Samandağ as a result of both sea and riverine marine litter transport.
5. Invasive water hyacinths: Invasive water hyacinths are spreading rapidly in the Asi River, causing a range of problems, including oxygen depletion and plastic pollution accumulation.
6. Lack of awareness about marine litter prevention, especially among citizens: Participants acknowledged that key stakeholders, such as fishermen, are not aware of the issue of marine litter, especially steps that they can take to prevent its generation.
7. Lack of reception facilities for fishermen to dispose of fishing gear, and lack of transparency in the way fishing gear is managed after it is disposed of: This problem reflects the absence of dedicated, free infrastructure for recovering used fishing nets and other gear. Furthermore, even when fishing gear is properly disposed of, stakeholders are not aware of how it is being managed.
8. Lack of information on the extent of seabed marine litter pollution: Empirical evidence suggests that the seabed is heavily littered, however, there are no data on the extent of this pollution.
9. Geopolitical and environmental emergencies, such as war and earthquake, take precedence: Participants pointed to the fact that pressing emergencies such as war and the recent earthquake in Türkiye take priority over other issues, including marine litter awareness-raising. Funds are diverted to these more immediate issues.
10. Lack of permanent consultation structures in environmental decision-making: Participants noted that key stakeholders, for example fishermen and industry cooperatives, are not included in environmental decision-making through permanent consultation structures, which means that their experiences and perceptions are ignored.

After discussion, participants selected the two highest-priority problems for deeper analysis: (i) ghost nets and ALDFG, and (ii) riverine plastic pollution. The participants then worked in groups to identify site-applicable and effective solutions to these two problems.

Addressing Ghost Nets and ALDFG

Stakeholders proposed a range of interventions targeting the sources and drivers of ghost nets and ALDFG:

- Improved collaborations: Participants stressed the importance of ensuring better

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collaboration among fishermen and their cooperatives to activate fishermen and give them incentives to prevent and collect marine litter. Fishermen must become an integral part of the solution for the problem to be effectively solved.

- Mapping the location of lost gear: Effective and efficient mechanisms must be implemented to map the location of ghost nets and ALDFG. This is a key first step in their removal.
- Prevention through awareness-raising and capacity-building targeting various groups: targeted awareness-raising campaigns should be implemented to inform various groups, including fishermen, about the impacts of marine litter, not only on the environment but on their livelihood as well, and the importance of prevention. Best practices for preventing fishing gear should be effectively shared.
- Establish a fishing gear collection and recycling system: This is important to ensure that fishermen have access to free disposal of fishing gear and are thus less likely to improperly dispose of it. Importantly, the system that will be set up should be transparent, so that it is clear how the collected fishing gear is properly managed.

Addressing Transboundary Riverine Transport of Litter

The second priority topic focused on addressing the riverine transport of litter from Turkiye's neighbouring countries:

- International collaboration: It was clear to the participants that this issue can only be solved through international collaboration. They recommended setting up a specialised committee or implementing dedicated workshops that will bring together stakeholders representing the countries that share the Asi River, to co-design effective solutions to address this issue.
- Appropriate cleaning technologies and equipment: The participants highlighted that the conditions both in the Asi River (because of the water hyacinth density) and the Samandağ coastal area are such that existing cleanup technologies do not work. It is therefore important to identify and/or develop suitable cleaning technologies and equipment that are customised to the needs of the region.
- Clear structure and infrastructure for the management of litter: Stakeholders noted the importance of ensuring that litter management becomes more transparent, from collection to eventual disposal.
- Incentives for relevant stakeholders: Incentives were perceived as important both for prevention and for marine litter collection. The stakeholders noted that systems such as Deposit Refund Schemes would be very important in ensuring that marine litter is prevented, whereas the implementation of practices such as Fishing for Litter, coupled with meaningful incentives for participating fishermen, could support marine litter management.

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Conclusion

The Samandağ stakeholder workshop provided a detailed understanding of the area's most pressing marine litter challenges and the social, infrastructural, and environmental factors that shape them. The co-designed solutions offer a roadmap for reducing plastic pollution. These insights will contribute directly to the broader SeaClear2.0 policy work and the 2026 White Paper, ensuring that Samandağ's experience helps inform scalable strategies across the Mediterranean.

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