

## Tide against marine aquaculture litter – A knowledge-sharing platform and app

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Until recently, there were no global estimates of the amount of plastic waste generated by the aquaculture sector (FAO, 2017). 'Identifying the options to address key waste items from aquaculture activities which could contribute to marine litter' is a priority action at global level included in the G7 Action Plan on Marine Litter (2015). Nevertheless, the necessary knowledge base to take policy actions and effective measures was largely lacking. Therefore, the AQUA-LIT project (EU EASME-EMFF) carried out a comprehensive assessment of the available data and knowledge on aquaculture as a source of marine litter in the North, Baltic and Mediterranean Seas.

The AQUA-LIT assessment compiled a Marine Litter Inventory of 65 different items of marine litter attributable to aquaculture, including ropes, nets, floats and buoys, collecting material, strapping material, tags, clothing and structure parts, of which almost three-quarters are partially or completely made of plastic. Nineteen items are unique to aquaculture (e.g. plastic mesh screens, mussel socks and "Tahitians"), and especially related to bivalve farming. Nevertheless, the current OSPAR and HELCOM databases only define four aquaculture categories of beach litter. As a consequence, all other collected mariculture related litter items are categorised in other more general groups and not taken into account. A further subdivided and harmonised European or international classification system is therefore recommended.

The global and European policy framework for the prevention and management of marine debris exists, but needs to be further translated into implemented tailor-made actions and measures depending on the source (e.g. aquaculture) of marine debris. To gain inspiration and knowledge from experts, multi-actor workshops were organised in the North Sea, Baltic Sea and Mediterranean Sea region. For the North Sea Learning Lab, the differentiation between consumables (single use, short use) and durables (long use), and the better labelling of aquaculture gear and items, including quality standards came out as key outcomes. The sector also proposes a mass-balance system: paying for what you leave offshore, and/or being rewarded for (collected) waste you bring on land. A deposit system can work very effectively for large items, but is unfeasible for frequently lost small items. Taxes on small and cheap disposable plastic gear items makes them more expensive for farmers to use and lose. Following the idea of Extended Producers' Responsibility (EPR), measures and related incentives have to be extended to individual or group-specific obligations and measures (on a voluntary basis, with a code of conduct, with new legislation etc.). Also, decommissioning plans for aquaculture facilities, based on the life investment cycle of the materials and infrastructure should be mandatory. Concerning waste management, a waste collection point in all ports and harbours is seen as a crucial factor for the success of the implemented measures.

The Marine Litter Inventory and Learning Lab outcomes are implemented in the AQUA-LIT Toolbox, which acts as a platform that provides regional available solutions and tools against marine littering from aquaculture activities to innovators, farmers, and other actors along the chain. Furthermore, the toolbox gives stakeholders an overview of the port reception facilities in several European countries and sums up the existing funding opportunities on different policy levels for stakeholders to apply and become 'bluer' in their practices. Lastly, the toolbox serves as a science-policy-society interface and supports sustainable policy-making and governance of the marine litter problem in the aquaculture sector by providing targeted actions plans and policy recommendations.

The AQUA-LIT toolbox is freely available in the AppStore and the AQUA-LIT website.

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