

# Deposition of Macro Plastic along Mountain Rivers as Litter

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## Description

Macro plastics refer to large plastic items, typically larger than 5 millimetres in size that have entered the environment. These can include items such as bottles, bags, packaging materials, and fragments of larger plastic objects. These materials, designed for durability have a significant negative impact on the environment due to their persistence and the potential harm they cause to wildlife through ingestion and entanglement. Mountain rivers often perceived as pristine and untouched by human influence, are far from immune to plastic pollution. Macro plastics can find their way into these ecosystems through various pathways, including improper waste disposal, littering, and storm water runoff from urban areas. Once in the rivers, these plastics can be transported downstream, causing damage to aquatic life, affecting water quality, and ultimately contributing to the broader plastic pollution crisis [1].

Citizen science involves the participation of the general public in scientific research, data collection, and analysis. It harnesses the collective power of individuals, providing a vast network of "citizen scientists" who can contribute valuable data that would otherwise be difficult for researchers to collect on their own. In the context of plastic pollution, citizen science initiatives have played a crucial role in raising awareness, generating data, and driving policy changes. The "Litter Selfie" guide is designed to tap into the accessibility and ubiquity of smartphones to engage individuals in documenting and quantifying macro plastic deposition along Mountain Rivers. The guide provides a step-by-step process for participants to follow. Choose a mountain river location for data collection. Consider areas where macro plastics are likely to accumulate, such as bends, eddies or areas near urban centers [2]. Decide on the time and frequency of data collection. Regular monitoring allows for the tracking of changes over time and the identification of potential hotspots.

Using a smartphone, take clear and well-lit photographs of macro plastic items found along the riverbanks. Capture different angles and perspectives to provide comprehensive documentation. Measure the size of each macro plastic item using common reference objects, such as coins or hands, and classify them based on type (bottle, bag, fragment, etc.). Enable geo tagging on the smartphone to record the exact location of each photograph. This geospatial data is invaluable for mapping the distribution of macro plastics [3]. Use dedicated citizen science platforms or apps to submit the collected data. These platforms often provide a standardized format for data entry and contribute to larger databases used by researchers and policymakers. Ensure that personal information and sensitive data are not captured in photographs. Respect the environment and local regulations while collecting data.

The data collected through the "Litter Selfie" initiative serves multiple purposes such as the visual impact of photographs showing macro plastics in a supposedly pristine environment can be a powerful tool for raising awareness among the general public, local communities, and policymakers. The data contributes to scientific understanding by providing insights into the types, quantities, and distribution of macro plastics in Mountain Rivers. Researchers

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can use this information to study patterns and develop strategies for mitigation. Robust data strengthens the case for policy changes aimed at reducing plastic pollution. Governments and regulatory bodies are more likely to take action when presented with evidence from citizen science initiatives. The "Litter Selfie" initiative fosters a sense of community engagement and shared responsibility. When individuals see the tangible results of their contributions, they are more likely to continue participating and advocating for change. While the "Litter Selfie" initiative holds significant promise, there are challenges to address.

Such as Ensuring the accuracy and consistency of data collected by citizen scientists is crucial. Providing clear guidelines and training materials can help mitigate discrepancies. Achieving comprehensive coverage of Mountain Rivers requires widespread participation. Strategies for engaging diverse groups of people and expanding the initiative's reach are essential. Sustaining interest and participation over the long term can be challenging. Continuous efforts to highlight the impact of the initiative and celebrate achievements can help maintain momentum [4]. Integrating citizen-generated data with existing research efforts can be complex. Collaboration between citizen scientists, researchers, and organizations is key.

The "Litter Selfie" citizen science guide exemplifies the potential of technology-driven, grassroots efforts to address complex environmental challenges. By empowering individuals to become active participants in documenting macro plastic deposition along Mountain Rivers, the initiative bridges the gap between scientific research, policy advocacy and community engagement. As more people contribute to this cause, the collective impact grows, influencing positive change for the health of our ecosystems and the well-being of present and future generations. Through their smartphones and a shared commitment to preserving the natural world, citizen scientists are turning the tide against macro plastic pollution, one "litter selfie" at a time [5].

## Acknowledgement

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## Conflict of Interest

There are no conflicts of interest by author.

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