Citizen Science Guidelines - Beach Litter Clean Ups

1. Title

Beach Litter Clean-Up: Citizen Science Action for the REMEDIES Project

2. Introduction

Marine litter, especially plastics, poses a significant threat to coastal and marine ecosystems, biodiversity, and the social and economic value of coastal areas. Beach clean-ups are a practical, visible, and inclusive citizen science action that mobilises communities to remove litter while documenting the impact of their effort.

This protocol provides step-by-step guidance for planning and implementing a safe and effective Beach Litter Clean-Up within the REMEDIES project. Citizens play a key role by participating in the clean-up, separating collected materials, and documenting results (e.g., participants, weights, photos) using the REMEDIES Citizen Science tools.

The activity supports REMEDIES objectives by raising awareness, enabling structured citizen engagement, and contributing to local actions that reduce plastic pollution and advance the Mission Restore Our Ocean and Waters targets.

3. Objectives

- Remove beach litter in a safe, organised, and environmentally respectful way.
- Engage and empower citizens and local stakeholders to take action against marine litter.
- Ensure basic, harmonised documentation of clean-up outputs (participants, weights, photos) to support communication and impact reporting.
- Promote source-reduction awareness by highlighting common litter types and local drivers of pollution.

4. Target Group

This activity is suitable for organised citizen groups and the general public, including youth groups, schools (with supervision), coastal communities, NGOs, local authorities, and company volunteer teams. Participation should be adapted to local conditions and safety requirements.

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5. Materials & Tools Needed

Core equipment and materials for a beach clean-up:

- Table (for organising materials and registration).
- Smartphone(s) for documentation and optional use of the REMEDIES ML (Marine Litter) App for Citizen Science.
- Camera (smartphone acceptable).
- Dynamometer scale (or equivalent) for weighing collected waste.
- Printed clean-up data sheet (VLPF format) as a backup.
- Protective gloves of different sizes for all participants.
- Litter pickers (optional but useful).
- Coloured waste bags to separate plastics from non-plastics (reported separately).
- First aid kit.
- Visibility/identification items (optional): t-shirts, flags, caps, posters, etc., with REMEDIES and EU donor logos where relevant.

Digital tools:

- REMEDIES ML (Marine Litter) App for Citizen Science (for recording types of collected litter, uploading photos, and entering bag weights). Download the app here.

6. Step-by-Step Process

6.1 Preparation

Preparation is essential for participation, safety, and effective waste handling. Before confirming the date and location, coordinate with relevant authorities and consider weather, tourism seasons, and biodiversity sensitivity.

Site identification (recommended criteria):

- Public access all year (no private/closed areas).
- Easy and safe access for participants and for waste removal logistics.
- Low to moderate beach slope (approx. 1-45°), avoiding shallow tidal mudflat areas.
- Open shoreline sections that are walkable (not obstructed by breakwaters/jetties).
- Close to a street and with nearby parking or public transport.
- Visible litter accumulation hot spots.

Operational scouting steps:

1. Scout the area and identify litter hot spots.
2. Record the geographical coordinates of the selected hot spot(s) using a GPS-enabled smartphone.

3. Take photos and/or short video clips of the overall area and hot spots (useful for impact communication).

Authorisations, logistics, and safety:

1. Contact the city/local authority departments for any required authorisations.
2. Coordinate with the waste management authority to arrange removal, final disposal, and any special logistics (provide location, timetable, and final pick-up point).
3. Secure appropriate insurance for the activity (as required locally).
4. Identify and brief a responsible safety focal point (first aid kit, risk awareness, incident response).
5. Ensure the clean-up will not threaten endangered or protected species or sensitive habitats; consult protected area management authorities where relevant.

Pre-event communication (start approx. 2-4 weeks before):

1. Date, start and end time of the clean-up.
2. Exact location and a clearly visible meeting/information point (easy to reach, near transport/parking).
3. Contact person (phone and email).
4. Partners/organisers/sponsors (if applicable).
5. Basic recommendations for participants (closed shoes, gloves, sun protection, water, etc.).
6. Event flyer with logistics and time schedule (recommended release 10-14 days before).

6.2 Clean-Up Implementation

On the day of the clean-up:

1. Organisers arrive at least 30 minutes before the announced start time to set up materials and the meeting point.
2. Welcome participants and deliver a short briefing covering: (a) the area to be cleaned; (b) safety rules (do not lift heavy items; avoid dangerous areas); (c) respect for wildlife and the environment; (d) confirmation that everyone has gloves and bags; (e) reminder of end time; (f) where waste bags will be gathered for collection.
3. Ask participants to use two different bags: one for plastics and one for non-plastics.
4. Keep at least one organiser at the meeting/information point to welcome late volunteers.
5. Provide a presentation/training on the different types of plastics found on the beach, with the support of the REMEDIES Flag on the Different Types of Plastics.

Figure 1 REMEDIES Flag on the Different Types of Plastics

6. Provide continuous assistance and supervision during the activity.
7. About 30 minutes before the end, guide teams towards the waste collection point to close the event smoothly.
8. Ensure all participants leave the area safely and that collected waste is stored/disposed of according to the waste management authority's instructions.

6.3 Documentation and Data Recording

Before the waste is removed by the waste management authority, record the following minimum information:

- Number of participants.
- Total weight of plastics collected (kg).
- Total weight of non-plastics collected (kg).
- Photos of the overall collected waste bags (and group photo, if appropriate).

Record and store this information using the REMEDIES ML (Marine Litter) App for Citizen Science whenever possible. If needed, enter bag types and weights via the REMEDIES web portal after the event.

Using the REMEDIES ML (Marine Litter) App for Citizen Science:

1. Download the REMEDIES ML (Marine Litter) App for Citizen Science from Google Play or the Apple App Store (search: "REMEDIES Citizen").
2. Organiser: log in to the web portal and create a new clean-up campaign (name, date/time, location, description).

3. Organiser: create one or more groups and assign a coordinator to each group (email required).
4. Coordinator/participants: log in or sign up via the mobile app and join the correct group.
5. During the clean-up: add collected litter in the app using the available categories.
6. End the clean-up session and upload group photos and bag photos (coordinator).
7. Record bag types and weights (kg) per bag either in the portal (Bags Details table) or in the mobile app (Cleanup > Manage Bags).

GDPR and data privacy:

The REMEDIES citizen tools follow GDPR principles (consent, transparency, and data control). Participants should be informed about data processing and photography practices according to local requirements.

Post-event communication (recommended):

- Share date and area cleaned, number of participants/partners, weights collected (plastic and non-plastic), and a short photo gallery.
- Highlight any follow-up actions or next clean-up dates to maintain engagement.

7. Additional Materials

- Download the REMEDIES ML (Marine Litter) App for Citizen Science, created by Infordata, here.
- REMEDIES ML (Marine Litter) App for Citizen Science - User Manual (step-by-step guide for organisers, coordinators, and participants), created by Infordata, here.
- REMEDIES ML (Marine Litter) App for Citizen Science - Video Tutorial, created by Infordata, here.
- REMEDIES ML (Marine Litter) App for Citizen Science - Infographic, created by Infordata, here.
- REMEDIES Flag on the Different Kind of Plastics (vertical and horizontal),created by Impact Hub Athens, University of Maribor, and Venice Lagoon Plastic Free.
- REMEDIES Citizen Science Manifesto, created by Impact Hub Athens, here.
- The recording of the PLASTIC FANTASTIC webinar on plastic identification and beach litter monitoring, with educational content from Venice Lagoon Plastic Free and University of Maribor, here.
- REMEDIES Beach Litter Monitoring and Clean up At a Glance - Do's and Don'ts, created by Venice Lagoon Plastic Free, here.

The present protocol was drafted by Impact Hub Athens with the support of Venice Lagoon Plastic Free, Infordata, NIC and VITO.