Marine Debris Processing Guide

This guide provides the details of the method Washed Ashore uses at their marine debris processing facility to clean marine debris.

Art 101 is located seven miles south of Bandon, Oregon on highway 101. It is the original Washed Ashore Project location. The workshop and gallery have now moved to the Harbortown Events Center in downtown Bandon.

While some of the details in this guide refer specifically to Washed Ashore facilities, many are transferable. However, the purpose of this guide is to provide an outline of our process and not to provide a template for all other locations or to address all safety concerns marine debris presents. Above all, when working with marine debris use personal protective equipment and prioritize the safety of everyone involved.
Storing Marine Debris After Collection

Marine Debris Drop Off Location

• Use a space that is easy and safe for a car to back into and unload.
• Any debris not secured in bags should be secured by some other method so that it does not escape into the environment.
• Establish drop off near processing area.

Safety

• Keep supplies wind and storm safe by covering them with nets or tarps and maintaining orderly supplies.
• Children should be supervised at all times if permitted to enter the debris yard.
• Marine debris is unpredictable, be cautious when working through bags!
• Arrange debris in a manner that is easy and safe to access.
• ALWAYS wear appropriate clothing when processing debris including thick gloves, close-toed shoes and rain gear.
• Avoid broken glass in debris bins.
• Have a protocol for hazardous materials, including any items filled with unknown liquid. Keep a spill kit close at hand.
• Be sure to keep well stocked first aid kit and other appropriate safety items.

Cleanliness

• Remove all attached barnacles, sea life and seaweed from debris while at the beach if possible.
• Do NOT pile marine debris with sea life attached near public buildings.
• Cover all collection bins with netting.
• Rinse and wash debris on a regular basis.
• Do not have debris soaking in water for more than 2 days in order to avoid algae, bugs, etc.

Special Instructions for Storing Rope

All rope must be removed promptly from the debris drop off area and taken to its own storage area. Rope adds logistical and visual chaos to the troughs and is also used differently than other debris. It holds bacteria and organic matter and often carries a nasty smell. Therefore, it needs to be removed and “aged” in its own trough. To best dry rope, create a drying rack behind the debris troughs for draping rope over to dry in sun and wind. This rack can be made of anything that the rope can hang from and receive proper air and sun exposure.

To best dry rope, create a drying rack behind the debris troughs for draping rope over to dry in sun and wind. This rack can be made of anything that the rope can hang from and receive proper air and sun exposure.
Marine Debris Troughs

What are marine debris troughs and how are they created?

Troughs are used to wash, store, and dry debris. Although you can use any container that will let water flow through, for large projects that involve lots of debris, creating wooden troughs will be very helpful.

These large rinsing and storage troughs are 8 feet long by 3 feet tall by 3 – 4 feet wide. They are made of wood and wire mesh. To create a trough, use at least 2” x 6” lumber for the main support beams and ⅜ or ⅝ inch galvanized wire mesh stapled as slings between the top boards. For extra stability, screw the wire mesh to the lumber every two feet. Be aware of the points where wire sections meet in troughs, these may have to be sewn together to prevent items from slipping through the cracks.

Debris Troughs (for large projects, you will need 24 or more):

- 4 + for mixed, drop off, first rinse debris – all 1/4 inch netting
- 10 + for colors: 1/2 inch netting - red, orange, yellow, green, blue, purple/pink, black, grey, brown, tan
- 2 for white – 1/2 inch netting
- 3 for water bottles – 1/2 inch netting
- 1 for colored bottles – 1/2 inch netting
- 1 for styrofoam (extra deep) – 1/2 inch netting for smaller pieces
- 1 for buoys (extra deep) – 1/2 inch netting
- 1 for cans and metal – 1/2 inch netting

Sorting and Washing Debris

Supplies:

- Biodegradable soap
- Vinegar water (1/4 cup vinegar to 2 gallons water)
- Brushes and scrubbers, these can sometimes be found on the beach
- Steel wool pads for scrubbing
- Bath tub or large bin for washing and soaking large items
- Large plastic 1/2 barrels for soaking
- Three gallon buckets for soaking small items, approx. 20 ideally
- Hoses, adjustable spray nozzles and water

Process:

1. Set up your space. The best location is outside over a raised deck for draining, but any location that drains well will work. Optimally, washing troughs should be within reach of two or more hoses. Space to store buckets, baskets, and plastic bins during the cleaning and sorting process should be out of the wind or secured.
Sorting and Washing Debris *(continued)*

2. **WEAR WATERPROOF BOOTS, WATERPROOF CLOTHING, AND HEAVY RUBBER GLOVES AT ALL TIMES WHEN PROCESSING DEBRIS.** This will keep your skin from being exposed to anything that might be in or on debris when it arrives.

3. Dump debris from bags and buckets into several designated sorting and washing troughs.
   - Remove any items that can’t be used for art supplies or are toxic. Examples include:
     - Diapers
     - Poop bags
     - Rotting items
     - Rotted fabric
     - Any item containing an unknown liquid and any materials that appear hazardous (these should be set aside in a designated hazardous material area)
     - Any sharp materials that may cut you when handled without gloves
     - Wrappers, cigarette butts
     - Thin plastics likely to photodegrade quickly
   - Remove any material that is too photodegraded to be used. These are items that fall apart in your hand or flake when handled. They also include brittle items that can’t be used in sculpture creation.
   - Remove any yellow foam and all blue and pink insulation foam.
   - Remove all large white Styrofoam and take to designated storage area.
   - Remove all unbroken glass bottles and take to glass trough.

4. Rinse all remaining debris in the trough. All items that are too big to be soaked in buckets or tubs must be thoroughly scrubbed first with vinegar then with soap then set aside to dry. After they are dry, take them to an appropriate large item storage area and sort them by color.

5. Remove all plastic bottles from the washing trough. Instructions for processing bottles:
   - Remove bottle caps and put caps in a bucket with vinegar water to soak.
   - Spray inside of bottles with the hose.
   - Shake and pour out water.
   - Optional: Cut off bottle bottoms if rinsing does not prove sufficient. Put cut off bottoms in a rinsing bin to dry.
   - Place bottles spout down in an appropriate location to dry.

6. Remove all medium items (bigger than an outstretched hand but not too big to soak in a bucket or bin). Instructions for processing medium size items items:
   - Rinse and scrape items individually.
   - Any items that have persistent dirt or grit caked on can be soaked overnight in vinegar water in an appropriate size bin.
   - Let soak 2-24 hours, but **DO NOT** soak items for more than 24 hours. This will often result in items accumulating dirt again.
   - After items are clean, take them to the appropriate color trough.
Sorting and Washing Debris *(continued)*

7. Once all large and medium size items are removed, rinse entire trough thoroughly. Mix items to push the top items to the bottom of the bin and pull the bottom items to the top. Repeat until all visible sand and grit has been removed.

8. When there is no sand or grit left on the small items left in the washing trough:
   - Distribute the remaining debris into buckets next to the trough.
   - Fill the buckets 3/4 of the way with vinegar water.
   - Press the floating debris into the water, mix and agitate multiple times.
   - Find a method to weigh items down and ensure that they remain submerged while they soak.
   - Let soak 2-24 hours, but DO NOT soak items for more than 24 hours. This will often result in items accumulating dirt again.
   - After the items have soaked, scoop them out of the buckets onto a tray or into a drying trough. Do not dump them out as this will result in any sand and grit in the bottom of the bucket landing back on the debris.
   - Take the clean items to the appropriate color trough.

Special Instructions for Rope

1. After rope has spent a significant time aging and no longer has a detectable smell, sort rope into rope and color type using a vertical hanging system if possible.
2. Avoid thick piles of rope by spreading it out as much as possible.
3. Rinse with hose on high setting and turn and rinse multiple times.
4. Allow rope to dry fully before bringing inside.
5. Label rope by length and type before coiling for storage

Daily Cleanup Procedures

1. Double check the ground and surrounding area for any debris that may have escaped during processing.
2. Ensure that all debris is secured and that troughs are covered to avoid debris being blown back into the environment by the wind.
3. Check to make sure all hoses have been turned off.
4. Place all clothing and gloves in a warm location exposed to the air in order to dry.
5. Replace any expendable items that were used.