

NOAA Marine Debris Program

Marine Debris Monitoring and Assessment Project



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Marine Debris Survey Photo Identification Guide

This guide is a tool for categorizing marine debris items during monthly field surveys. The examples of debris types within each category are meant to assist in reporting survey results. To view and search the full photo identification guide and photo captions, visit the MDMAP Get Started Toolbox online Monitoring Photo Gallery at <http://marinedebris.noaa.gov/research/monitoring-toolbox>.

Plastic

Hard Plastic Fragments

Plastic fragments >2.5cm that retain hard structure (though with weathering, hard plastics may become brittle and break apart when a little force is applied). A fragment is a piece of a larger item that cannot be identified, or that is less than 50% of the original item.



Foamed Plastic Fragments

Plastic fragments >2.5cm that are lightweight and can generally be broken apart or that crumble easily (however, exposure to the environment may reduce 'crumble-ability'). A fragment is a piece of a larger item that cannot be identified, or that is less than 50% of the original item.



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Filmed Plastic Fragments

Plastic fragments >2.5cm that are composed of thin plastic sheets/films; these filmed plastics are flimsy and bend easily. A fragment is a piece of a larger item that cannot be identified, or that is less than 50% of the original item.



Food Wrappers

Food wrappers are distinguished from plastic films by identifiable labels. Food wrappers come in a variety of types and sizes. Food packaging can be made of polypropylene (PP), polystyrene (PS), or polyethylene (PE).



Plastic Beverage Bottles

Plastic beverage bottles can include milk/juice jugs, or containers for soft drinks, water, juice, sports drinks, and beer. They come in a variety of sizes (e.g. 6 oz. to 2 L) and colors (translucent, green, brown, light blue, etc.), and are usually made of polyethylene terephthalates (PET or can be made of PETE).



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Other Jugs/Containers

Other Jugs/Containers includes a variety of plastic packaging types. Examples include (but are not limited to): food containers (e.g. yogurt containers, take out containers, etc.), oil lube bottles, plastic buckets, bait containers, baskets, or barrels. Most are made from polyethylene (PE).



Bottle/Container Caps

Bottle & container caps come in various sizes and colors. Caps and closures for beverage bottles are usually made of polypropylene (PP) and high density polyethylene (HDPE), with other container lids being made of low density polyethylene (LDPE) or linear LDPE (LLDPE).



Cigar Tips

Cigar tips come on some cigar brands and are typically manila colored. Only record cigar tips > 2.5 cm long.



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Cigarettes & Cigarette Filters

Cigarettes and cigarette filters can be hard or fibrous (both are made of a synthetic polymer - cellulose acetate). Some cigarettes may not have filters and are composed of only tobacco and paper. Only record cigarette butts > 2.5 cm long.



Disposable Cigarette Lighters

Disposable cigarette lighters have a casing made of a rigid plastic (usually with a metal top). They may or may not contain fluids.



6-Pack Rings

6-Pack Rings are composed of a semi-flexible (but strong) plastic material. They are used in the packaging of beer cans, sodas, etc.



Bags

Plastic bags (thin film) are usually made of HDPE or LDPE. Examples include bags used for: dry cleaning, newspapers, bread, frozen foods, bulk ice, fresh produce, grocery bags, household garbage, etc. Pieces of plastic film that are recognizable as $> 50\%$ of a plastic bag should be recorded as such.



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Plastic Rope & Small Net Pieces

Plastic rope and small net pieces are composed of synthetic material rather than cloth or fabric. Plastic ropes and nets are composed of polypropylene (PP) and/or nylon. Monofilament fishing line is NOT included, and should be recorded as "Fishing Lures & Line".



Buoys & Floats

Generally associated with fishing and boating activities (recreational or commercial). A buoy floats at the surface and is moored to the bottom. Floats (some are also called bobbers) can 'float' at various depths or rest at the surface. These come in various sizes, shapes, and colors. Most mooring buoys are made from HDPE. Rope floats are made of compression molded polyvinyl chloride (PVC). Some floats can be made of rigid polystyrene (PS-foamed plastic).



Fishing Lures & Line

These items can be found in a variety of forms based on fishing type. Fishing lures come in a variety of shapes, sizes, and materials depending on their function. Modern types are made of plastic with metal hooks and eyes for lines. Fishing line with lures attached should be recorded as one item. Fishing line types are mostly available in three varieties – monofilament, braided, and fluorocarbon. Fishing line is usually made of nylon or PET/PETE, with monofilament being the most popular.



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Cups

Cups can be made of hard or foamed plastic, and are usually made of either PP or PS. However, some cups have been made of HDPE and PET, and most paper cups are coated with a plastic film. Plastic-coated cups are included in this category.



Plastic Utensils

Plastic utensils include disposable knife, fork, and spoon cutlery. Often these utensils are made from polypropylene (PP), polystyrene (PS), or polyhydroxyalkanoates (PHA; a biodegradable plastic).



Straws

Straws come in various sizes ranging from shorter ones (~4 inches) used in cocktail drinks to a variety of beverage types (~8-10 inches). Straws that are made of paper will deteriorate faster, even if wax-coated. Straws found on the beach or floating on the water will most likely be made of polypropylene (PP).



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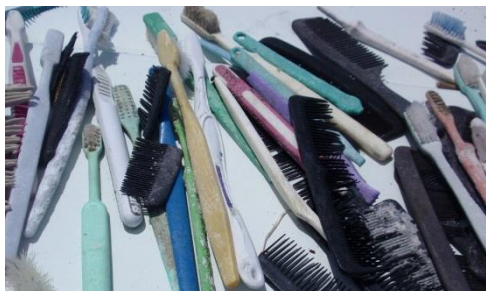
Balloons - Mylar

Mylar balloons have a seam and are made of a metal (foil) coated plastic such as polyethylene or nylon. They usually have a shiny, reflective surface and often times have designs with pictures and/or words.



Personal Care Products

This is a very broad plastic debris category. This includes various products, like health and beauty aids, ranging from deodorants, to suntan or body lotion bottles, to combs/brushes, to toothbrushes. Other items may include chap stick tubes, tampon applicators, hearing aids, etc. Items are usually made of polypropylene (PP) and polyethylenes (including HDPE).



Plastic Other

Items that do not fit into one of the plastic categories above. Describe the 'other' items in the notes section.



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Metal

Aluminum/Tin Cans

Aluminum/Tin cans are used for beverages (e.g. sodas, juice, beer) and food stuffs. Exposure to the environment will cause these containers to deteriorate - aluminum cans become brittle over time and collapse. Tin cans rust when exposed to the environment.



Aerosol Cans

Aerosol cans have an outer shell of metal (aluminum or steel) and compressed contents. The spray valve will be made of plastic and the cap is also usually plastic. The spray valve and cap will most likely not be attached to the canister.



Metal Fragments

A metal fragment is a piece of a larger item that cannot be identified, or that is less than 50% of the original item. Metal pieces that have been exposed to the environment may rust depending upon their material.



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Metal Other

Items that do not fit into one of the metal categories above. Describe the 'other' items in the notes section.



Glass

Glass Beverage Bottles

Beverage bottles are used for sodas, water, liquor, beer, and wine and come in assorted colors (clear, green, brown, blue, and other colors). Most glass beverage bottles have metal caps.



Jars

Many glass jars are used for food, condiments, make-up, and other materials. This type of debris is usually associated with household waste (land-based sources) or gallery waste (ocean-based sources). The lids are usually metal.



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Glass Fragments

Glass fragments are pieces of larger glass items that cannot be identified, or are less than 50% of the original item. If glass fragments have been in the environment for long periods of time, they may become weathered and appear with smooth edges and a frosted appearance (e.g. sea glass). Newly-fragmented glass pieces are likely sharp, so take care in picking up these items (use gloves or a scooper to remove sharp pieces of glass).



Glass Other

Items that do not fit into one of the glass categories above. Describe the 'other' items in the notes section.



Rubber

Flip Flops

Flip-flops or "slippers" are primarily composed of a rubber sole. Other shoes that have a primarily rubber exterior, such as rubber fishing boots, should be recorded under Rubber – Other.



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Rubber Gloves

Work gloves used for fishing may be made of natural rubber latex, Nitrile (synthetic rubber compound), Neoprene (polychloroprene), or polyvinyl alcohol rubber (synthetic). Note: In some geographic areas, evidence of sea turtles attempting to feed on discarded gloves can be seen with diamond-shaped bites in the gloves.



Tires

Tires can come in various sizes (trucks, cars, trailers, bicycles, recreational vehicles, lawn mowers, etc.) and may have the wheel rim (metal), hub cap (metal) and/or covering lug nuts (metal) still attached. If an inner tube is found, it will be made of rubber but will be from a much dated vehicle as current styles do not use inner tubes.



Balloons – Latex

Latex balloons are the traditional ‘party’ balloons. They are also often used at festivals, open houses, sales, mass balloon releases, etc.

These balloons are made of natural or synthetic latex, are usually round or oval in shape, and can come in a variety of colors.



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Rubber Fragments

A rubber fragment is a piece of a larger item that cannot be identified, or that is less than 50% of the original item. Rubber fragments may not feel like 'rubber' due to their degradation when exposed to the environment. Due to oxidation, rubber may even feel brittle.



Rubber Other

Items that do not fit into one of the rubber categories above. Describe the 'other' items in the notes section.



Processed Lumber

Cardboard Cartons

Cardboard cartons can be anything from cereal boxes to moving boxes, and are distinguished from Paper and Cardboard because they hold their carton/container shape. They will begin to deteriorate the longer they are exposed to the environment. Cardboard cartons absorb moisture and the layers that form the walls will start to fall apart, resulting in the box collapsing. The longer it is exposed, the faster it will deteriorate.



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Paper and Cardboard

Paper consists of newspapers, magazines, books, and other items. These materials will deteriorate due to exposure to the environment.



Paper Bags

Examples of paper bags include: fast food bags (e.g. fast food consumed on/near the beach), grocery bags, beer/wine bags, etc. The bags will begin to deteriorate the longer they are exposed to the environment. As bags absorb moisture, the paper will fall apart.



Lumber/Building Material

Lumber that has been cut into beams/planks or treated by humans should be recorded as lumber/building material. Building materials may include a variety of material types depending upon the use and source. Non-lumber building materials could be plastic or metal and should be recorded in the appropriate category. Natural woody debris and burnt firewood are not considered marine debris.



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Processed Lumber Other

Items that do not fit into one of the processed lumber categories above. Describe the 'other' items in the notes section.



Cloth/Fabric

Clothing & Shoes

Examples of clothing items include: shorts, tops, underwear, socks, etc. Shoes recorded here should be primarily composed of cloth/fabric on the exterior.



Gloves (non-rubber)

Gloves (non-rubber) made of fabric.



Towels/Rags

Fabric towels/rags left behind by beach-goers or used on boats for working with equipment and maintenance (cleaning) activities.



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Rope/Net Pieces (non-nylon)

Rope/net pieces that are made of fabric can be identified by a 'softer' feel in most cases. This includes large (very thick) natural ropes used as mooring lines for ships when in port..



Fabric Pieces

Fabric pieces can't be identified as an original object due to deterioration. Fabric pieces may tear when pulled on.



Cloth/Fabric Other

Items that do not fit into one of the cloth/fabric categories above. Describe the 'other' items in the notes section.



Other/Unclassified

Other/Unclassified

If the primary material type could not be identified or is not listed, record the item as "other or unclassified". This may include leather items, concrete, etc.

