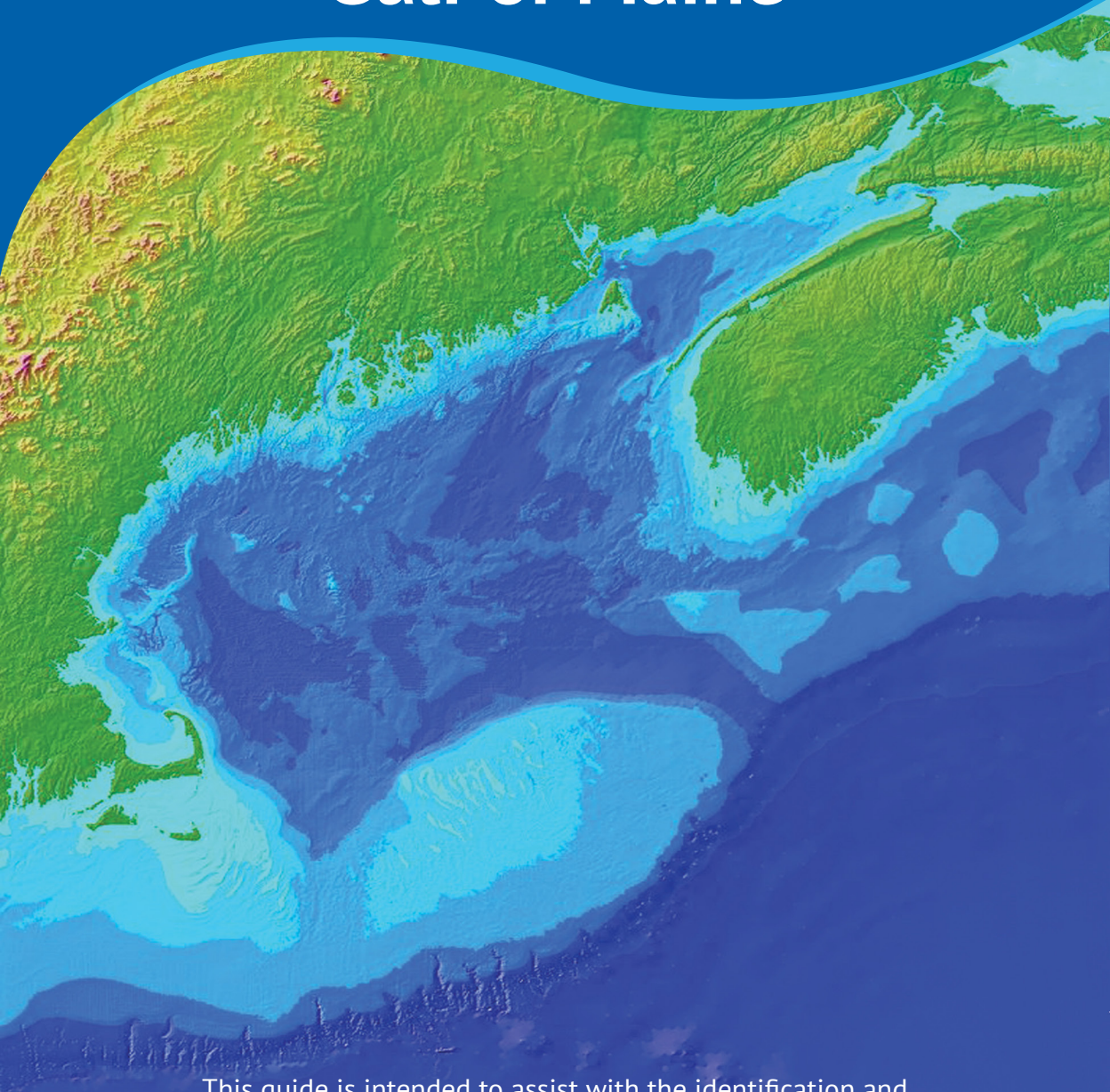


Field Guide to Marine Debris in the Gulf of Maine



This guide is intended to assist with the identification and documentation of many debris items found on beaches and shorelines surrounding the Gulf of Maine, a body of water bordered on the north by Nova Scotia and New Brunswick and on the south by Cape Cod.

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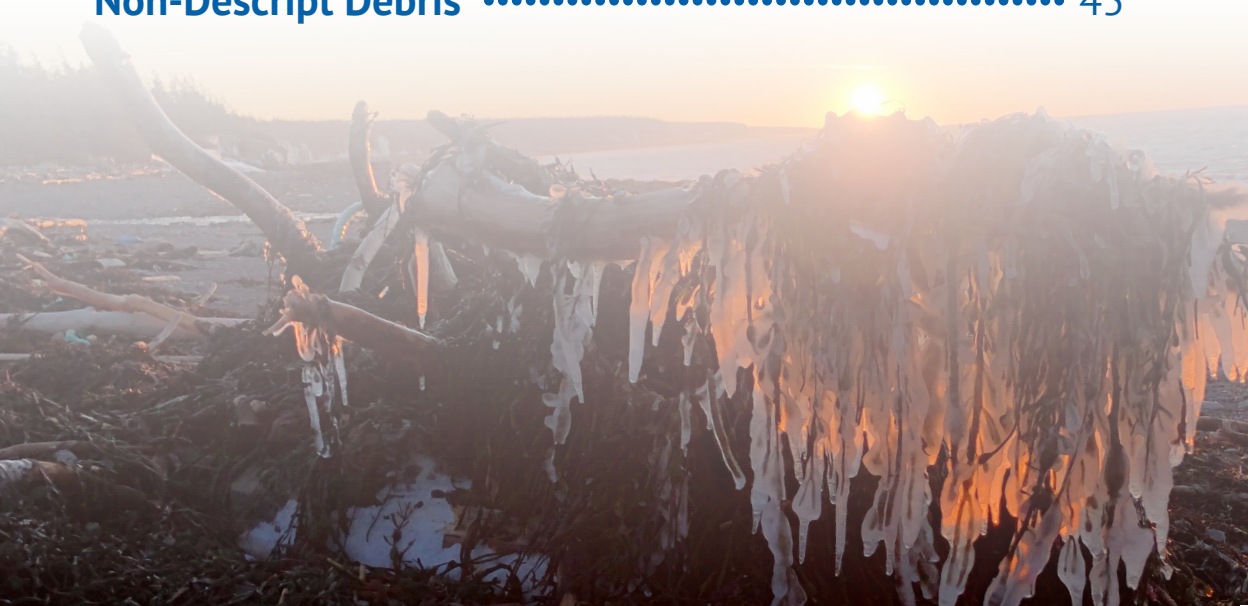
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Along the shoreline of the Gulf of Maine, the ocean deposits its holdings when the tide comes in, shifts them around during storms, and may pull them back out on an outgoing tide, as it has done since the beginning of time. Seaweed wrack, the carapace of a crab, smoothed bits of rock -- organic or inert flotsam fits naturally in the ecosystem along the beaches of Nova Scotia, New Brunswick, Maine, New Hampshire and Massachusetts.

Not so natural is the man-made ephemera that washes up, the leavings of our human existence. We contribute many materials to the mix, and each of them can be defined as “marine debris”, which is “any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned the marine environment or the Great Lakes,” as defined by **NOAA**.

Not all marine debris is created equal -- a smoothly worn bit of bottle glass may be the target of many a beachcomber’s quest, but a degraded plastic bottle has little or no value, either to the person picking it up or the environment in which it landed.

This guide is intended to help identify likely -- and not-so-likely -- marine debris culprits which may be found on a rocky, sandy or marshy coastline in New England or the lower Canadian Maritimes around our shared Gulf of Maine. It highlights items found regularly in formal shoreline debris and data collection efforts conducted by the author organizations, and assists with documenting a few of the more important plastic debris items tracked in regional datasets.

All of the photos included in the guide are from shoreline cleanups or debris inventory events held in this region by the author organizations.

We hope you walk many shorelines, and look forward to hearing about what you find there.





Most Valuable Trash

Some debris has value to ongoing research, and data from these debris items can be contributed to regional or national databases as indicated.

Explosive Shock Tubing

Inert, thin, hollow, plastic tubing (usually yellow) in any length from ½ inch to 80 feet (2 cm to 24 meters), used to conduct underwater blasting work in the Boston Harbor dredging project from June 2021 through January 2022. Data are used to develop future containment strategies.

Report length, location and date of removal at

anecdadata.org/projects/view/1041

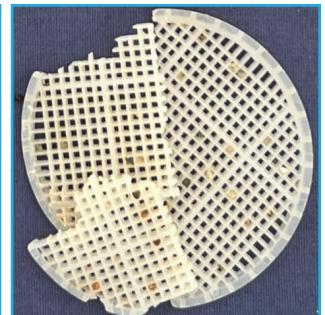
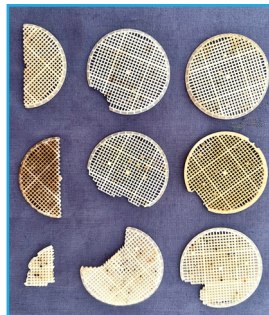
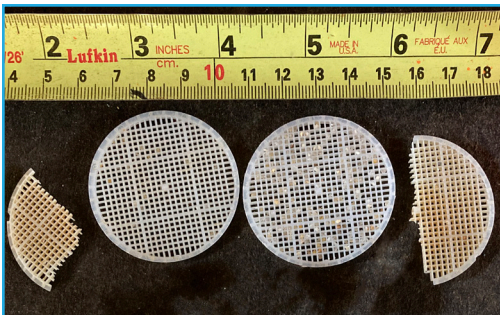


Hooksett Disks

Round, white plastic biofilters (see p. 10) accidentally released into the Merrimac River from a NH wastewater treatment plant in 2011. May be found whole or in pieces.

Add your disk to the tracking map at

reportdisks.org



Lobster Trap ID Tags

Rigid plastic bands in various colors, each stamped with unique information (year of issue, license #, state, fishing zone). Please hold and send to CCS, or send a clear photo of full tag. Data are used to support the development of new trap ID methods.

Contact CCS to report or send tags: ccs@coastalstudies.org



Eel Trap Entrance (ETE) Cones & Barrels

Black, tapered, plastic cones fitted into barrel traps which allow animals to enter the trap and prevent their exit. Data are used to increase awareness of impacts and improve trap design.

To include your finding in research conducted by the Surfrider Foundation in Hawaii, send an email to: ccs@coastalstudies.org



A large pile of discarded, corroded, and leaking batteries of various brands including Energizer, Duracell, and Great Value. The batteries are arranged in a dense, overlapping manner, filling the entire frame. Many of the batteries show significant signs of wear, including rust, corrosion, and leakage of electrolyte. The brands visible include Energizer, Duracell, Great Value, and others. The text "Potentially Hazardous Debris" is overlaid in the center of the image.

Potentially Hazardous Debris

Potentially Hazardous Debris

6

Band-Aids & Gauze

Cloth or plastic bandages and gauze used for medical purposes.



Batteries

Including car, boat, weather balloon or other batteries.



Dog Waste Bags

Plastic bags left by dog owners -- handle with care!



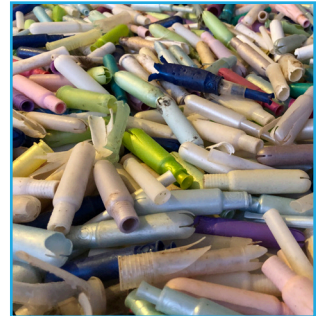
Condoms & Wrappers

Sometimes found complete, wrapped, or just a circular rubber band.



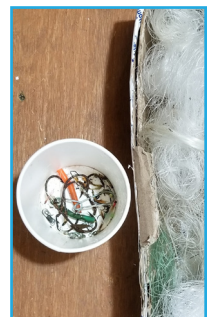
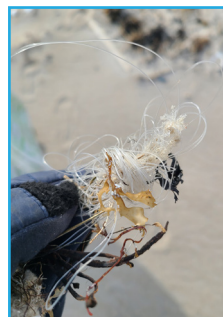
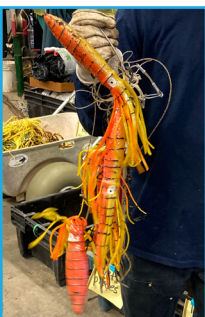
Feminine Hygiene Products

Pads, panty liners and their packaging; as well as tampon applicators, which are plastic, tubular and come in various colors; often discharged from wastewater treatment plants during storm events.



Fishing Lures & Line

Lures and monofilament line may have hooks attached; handle with care.



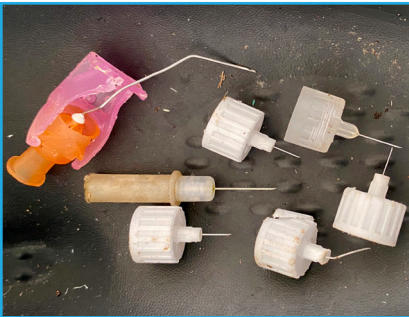
Personal Protective Equipment - Gloves, Masks, Wipes

PPE includes disposable or cloth masks, gloves, and/or wipes.



Syringes

Hypodermic needles and caps; may or may not be intact -- please use caution when handling, and place into a closed "sharps" container.



Important Reminder!

Due to the likelihood of finding potentially hazardous debris while performing beach cleanups, participants are advised to wear protective gloves and soled shoes to prevent injury from potentially hazardous debris or other hazards that might be encountered, such as sharp rocks, thorny or poisonous flora, stinging fauna or rusty metal debris. Be safe out there!

Balloons & Balloon Strings

Latex or “mylar” balloons, may be shredded or faded; helium nozzle piece often found separately; latex mouthpiece looks like a small “O” ring.



Beach Umbrellas & Umbrella Tips

Pointy tips are white, plastic, conical pieces from the base of beach umbrellas. Tips may be confused for bottle rocket cones.



Biofilters*

*Hooksett Disks are biofilters, see p. 3

Can be flat, circular or cylindrical, with many ridges or tiny openings.



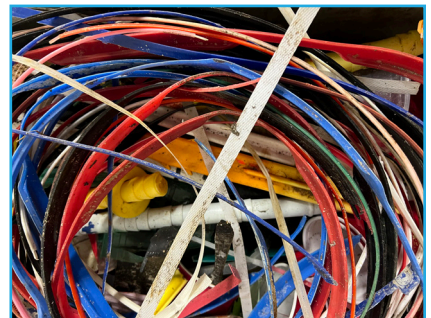
Buckets, Lids & Handles

Hard plastic buckets, their lids, and detached bucket handles.



Bucket Pull Strips & Lid Seals (Gaskets)

Pull strips may resemble strapping bands but are the thin strips of plastic pulled from the lid to unlock a new bucket. Lid seals (or gaskets) are thin rubber rings that fit into the groove on the underside of the lid to help create a tight seal.



Clothing

Including hats, socks, garment tags and other pieces of clothing.



Dock Materials & Dock Foam

Any piece of buoyant dock material, ballast, float system, or enclosed or open foam, including small or large pieces.



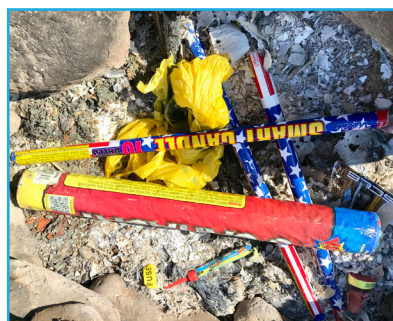
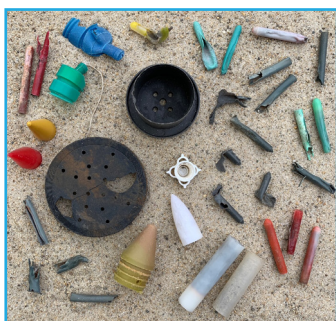
Fabric & Textiles

Non-clothing soft goods including upholstery, luggage, bedding or unidentifiable fabric.



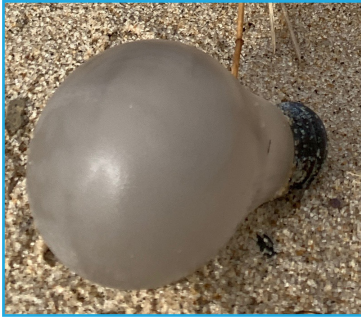
Fireworks

Including cardboard tubes or plastic pieces, some of which may resemble exploded pen caps.



Lightbulbs

Surprisingly, intact lightbulbs of various shapes and sizes are often found on some shorelines. Beware of broken glass when handling and transporting.



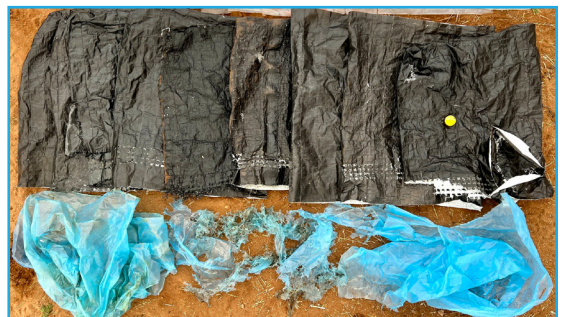
Non-Beverage Bottles & Jugs

From cleaning or auto fluids; record whether plastic or metal.



Plastic Bags

Non-descript plastic bags, whole or in pieces; logged separately from shopping, snack or dog poop bags.



Shoes

Including flip-flops, boots, or parts (soles, liners).



Shotgun Shells & Wadding

Colored plastic tubes open on one end; may be tipped with metal; wadding is inner plastic tube that looks exploded.



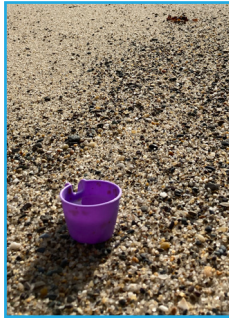
Tires

Found in shoreline cleanups around the globe, often used as protective gear on ocean-going vessels



Toys

Including sand shovels and buckets, snorkeling gear, balls, or dog toys.



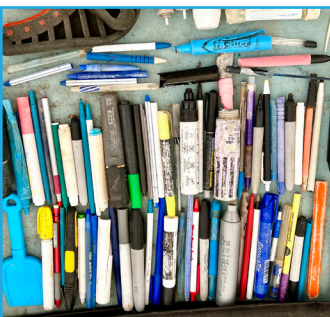
Wristbands

Made of high-density polyethylene, or Tyvek® polyester, worn at events or resorts or on cruise ships.

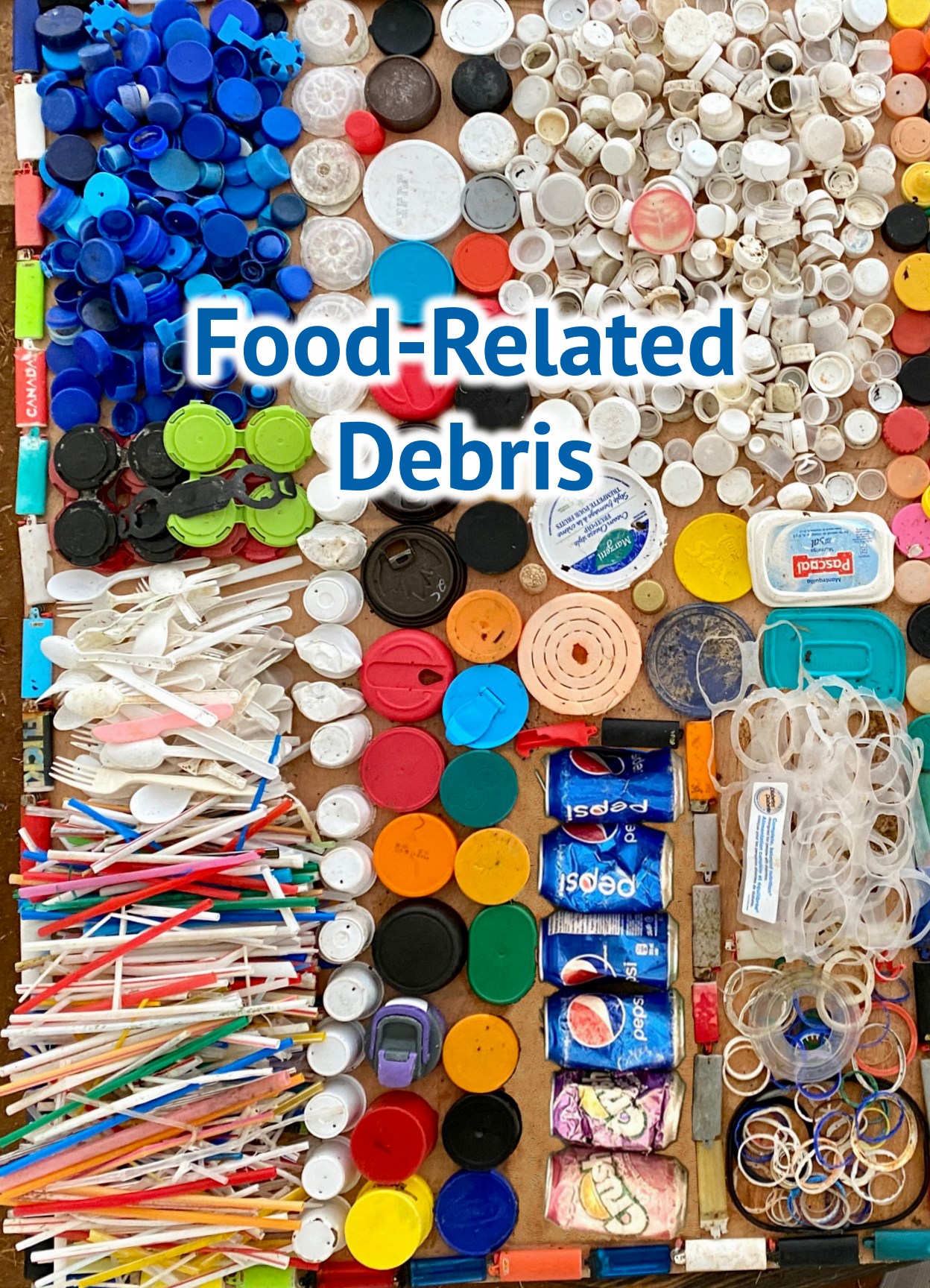


Writing Tools & Caps

Including pieces or parts of anything used to write, color or draw.



Food-Related Debris



Bottle Caps & Cap Liners

Plastic twist-off or pop-off caps to bottles or jugs. Bottle cap liners are thin pieces of foam or plastic fitted into the top of a bottle cap to help create a seal as well as provide advertising or expiration information.



Cans

Aluminum or tin beverage or food cans. Watch out for sharp edges.



Can Rings & Can or Bottle Carriers

A set of connected, soft plastic rings used to package multi packs of drink cans or bottles; or a set of hard plastic, interconnected rings or disks that snap onto the top of beverage cans.



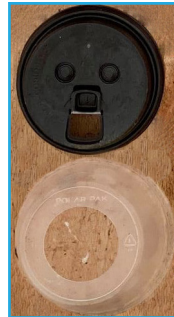
Coffee Pods & Filters

Single-use plastic containers or cups used to hold coffee grounds in a personal-serving coffee machine.



Cup Lids

The top to a plastic drinking cup used for hot or cold to-go drinks.



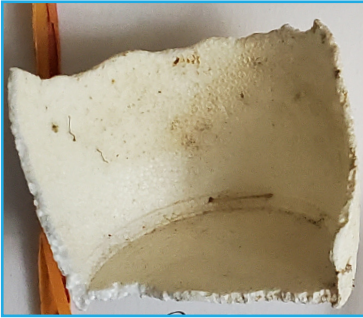
Cutlery

Plastic spoons, forks, or knives. Also record wooden cutlery.



Foam Cups

Record whole cups or smaller identifiable pieces of foam cups.



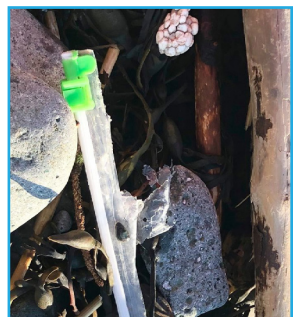
Foam Food Containers

Takeout containers, food trays, egg cartons, etc.



Food & Snack Bags

Plastic bag which may have a zipper or fold top. Include partial bags with identifiable closure.



Food Stickers

Circular, oval or square stickers used to label fruit and produce.



Food Wrappers

Multilayered foil & plastic such as granola bar or candy sleeves and chip bags. This includes the corners torn off when opening the wrapper.



Glass Bottles

Beverage bottles such as for beer or soda. Watch out for broken glass.



Nip Bottles

Miniature plastic or glass liquor bottles.



Non-Water Plastic Bottles

Beverage bottles for juice, soda, milk, energy drinks, etc.



Paper Food Containers

Food containers that are made of paper which usually have a plastic lining.



Plastic Bottle Labels

"Paper" or plastic labels from single-use plastic water or beverage bottles.



Plastic Cups

Colored plastic, smoothie, or clear plastic to-go cups; includes plastic-lined "paper" cups.



Plastic Food Containers

Rigid plastic as opposed to wrappers, foam or film.



Plastic Food Container Lids

The plastic top to a food container.



Plastic Straws, Stir Sticks & Lid Plugs

Any size plastic straw, beverage stirrer or lid plug stick (inserted into the mouth of a to-go cup lid to prevent spills and heat loss).



Plastic Water Bottles

Single-use, clear plastic water bottles that come in many sizes.



Shopping Bags

Plastic bags from grocery or retail purchases, with handles or logo visible. Includes partial bags.



Snack Spreading Stick

Short plastic rectangular sticks used to spread peanut butter or other foods on crackers in disposable snack packs. The sticks are shades of red and around 2 in / 6 cm long.



Tamper Evident Bands

A thin ring of plastic that was once attached to the lid or cap of a bottle or container to indicate tamper-free status.





Construction Debris

Construction Foam

Sprayed or rigid foam used for insulation or in construction.



Dimensional Wood

Altered wood, including pressure treated, painted or stained wood.



Electrical Wire

Wire used in boat or home construction, with or without sheathing.



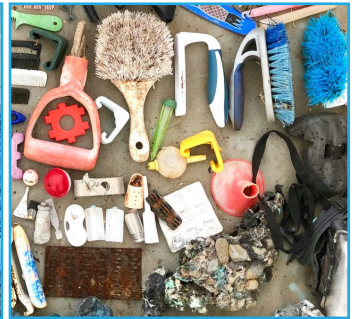
Landscape Fabric or Tarp

Usually black or blue woven plastic fabric often used for gardening, landscaping or erosion control. May have frayed edges.



Other Construction Debris

Can include paint brushes, rollers, tools, rubber, caution tape, and more.



Pipe

Hard or soft plastic pipe or tubes or pieces.



Plastic Tube Cleaners

Ribbed pieces of plastic used to clean condensers and heat exchange tubing. About 1 in / 3 cm long and usually blue.



Swarf

Curled pieces of material (plastic, metal, wood, etc.) formed when drilling or machining holes; often from barrels drilled aboard boats.



Silicone & Grease Tubes

Roughly 12 in / 30 cm long plastic tubes filled with silicone or grease, often with a conical tip. Leaking tubes pose a serious threat to the ecosystem. May find cut-off tips separately.





Smoking Debris

Cannabis Packaging

Plastic tubes or foil packaging for cannabis paraphernalia.



Chewing Tobacco & Nicotine Cans

Hockey puck-shaped plastic cans or lids, usually black.



Cigar Tips

White, rigid plastic tips from cigars or cigarillos.



Cigarette Butts

Non-biodegradable cellulose acetate cigarette filters in any stage of degradation. May show orange outer paper or inner white filter. This is the number one debris item found in beach cleanups around the world.



Lighters

Plastic disposable cigarette lighters.



Tobacco Wrappers

Cellophane wrapping or cartons for cigars, cigarettes or other tobacco products.



Vaping Items

Disposable e-cigarette parts, may resemble a USB flash drive.

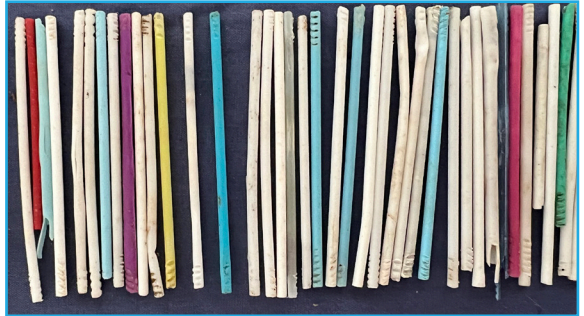


Personal Hygiene Debris



Ear Swab Sticks

Thin plastic sticks with shallow indentations on each end where a cotton swab was attached. Shorter than popsicle sticks.



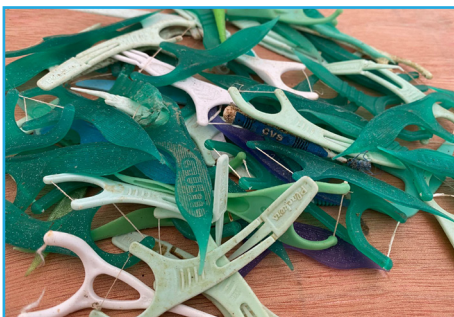
Hair Accessories

Any tool used for one's hair, including hair brushes, clips or ponytail holders.



Teeth Flossers

Thin plastic dental hygiene item; may have a brush or pick on one end.



Other Personal Hygiene Products

Toothbrushes, deodorant, cosmetics, lip balm, etc.



The image shows a large, dense pile of discarded fishing gear. In the center, there is a tangled mass of fishing nets in various colors including orange, yellow, green, and purple. Surrounding this central pile are numerous black plastic frames, which appear to be part of a larger fishing equipment, possibly traps or nets. The entire scene is set against a background of more debris, creating a sense of overwhelming waste. The text 'Fishing Industry Debris' is overlaid in a bold, blue font with a white outline, centered over the pile of nets.

Fishing Industry Debris

Aquaculture Bags & Floats

Used in oyster or clam farming. Black, rectangular, rigid plastic mesh bag, 34x18x4 in / 86x46x10 cm. Floats are hollow black plastic pontoons of varying dimensions, and may hold ballast water.



Aquaculture Nets

White, black or orange fine plastic mesh netting used to protect seed clams.



Bait Bags

Colorful, soft plastic mesh bags used for baiting lobster traps; with and without draw strings



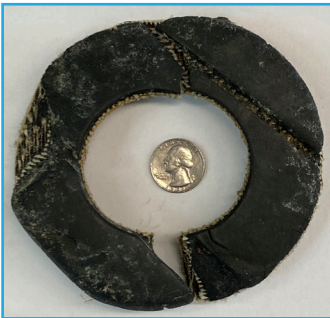
Buoys

Rigid plastic or foam in all sizes and colors, including whole buoys, identifiable chunks and buoy sticks; can be returned to owner if in good condition.



Chafing Gear

Round, oblong or donut shaped tire material used to protect equipment or vessels; usually black and frayed.



Fishing Gloves

May be made of fabric or of flexible plastic, rubber.



Fishing Totes, Crates & Barrels

Various plastic tubs or barrels used in the fishing industry.



Glow Sticks

Plastic tubes filled with light-emitting chemical solution to lure fish and keep track of the line.



Knives

Whole knives or knife handles, typically used on fishing vessels. Handle with care.



Lobster Trap Escape Vents

Rectangular, rigid plastic panels used on lobster traps, with one rectangular or two circular openings. Usually black but occasionally in other colors.



Lobster Claw Bands

Thick, wide synthetic rubber bands of various colors and sizes; often with bite marks along the edges.



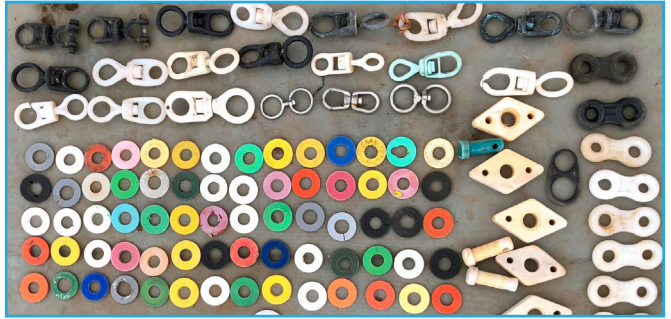
Lobster Trap Corners

Plastic V-shaped clips used to protect the corners of rectangular wire traps.



Lobster Trap & Buoy Parts

Donut-shaped plastic buoy washers, dogbone-shaped links in black or white, breakaway swivels, plastic cleats, etc.



Runner Strips or Cleats

Used on lobster traps to hold the runner on the bottom of the trap. At one time they were made from hand-cut pieces of plastic or rubber; now most are manufactured.



Wire Traps & Pieces

Metal mesh coated with PVC in a variety of colors. Beware of rusty sharp metal points. Sometimes the wire rusts out of the PVC coating leaving the empty plastic mesh.



Monofilament Line

Nylon line from the hook-and-line or rod-and-reel fisheries, often with a pink, green, or blue cast. Be cautious of hooks.



Nets & Net Pieces

Knotted monofilament or twine in a visible mesh, or in short pieces.



Rope & Rope Pieces

Twisted or braided rope, single strands, or rope fiber.



Rope Knots

A stand-alone knotted section of rope cut from a longer piece; often from lobster trap groundline.



Strapping Bands

Flexible plastic straps from lobster bait boxes (usually white).



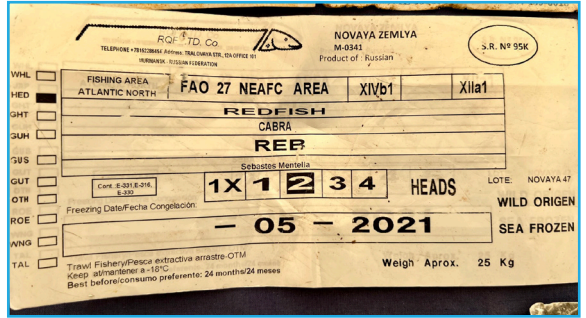
Top-Me® ID Tags

Plastic orange ID tags, rectangular, stamped with various information.



Tyvek® Labels

Plastic labels or tags used in various fisheries to indicate product, source, destination and other information.



Zip Ties

Various colors, used in aquaculture, lobstering and shipping industries.

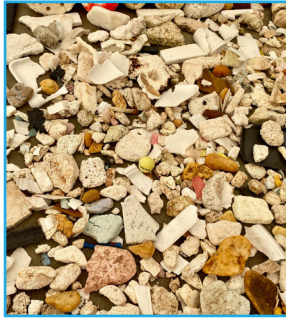


A large pile of shredded paper debris, primarily yellow, with distinct sections of green, red, and blue. The text "Non-Descript Debris" is overlaid in the center.

Non-Descript Debris

Foam

Unidentifiable pieces of polystyrene foam, catalogued by size (under or over 2 cm / 1 in).



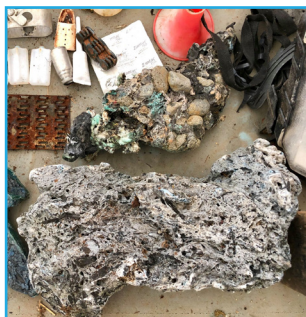
Plastic Film

Unidentifiable pieces of plastic sheeting from food packaging or other items.



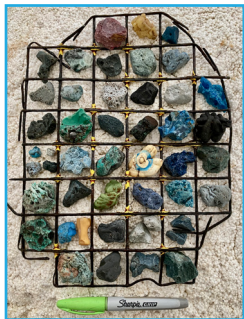
Plastiglomerate

Consists of plastic that has been burned or melted and bonded with natural materials like rocks, pebbles, sand, etc.



Pyroplastics

Plastic that has been burned or melted. These pieces float and are usually found at the high tide mark. They are often not noticed because they look so much like rocks.



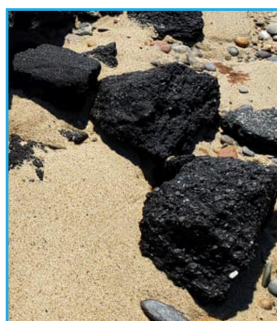
Rigid Plastic

Unidentifiable pieces of rigid plastic, catalogued by size (under or over 1 in / 2 cm).



Tar & Asphalt


Chunks of hardened tar in any size. Tar hardens as a dark brown or black and is lighter than a rock of the same size.



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A sample data card may look like this:

CCS Beach Cleanup Data Card



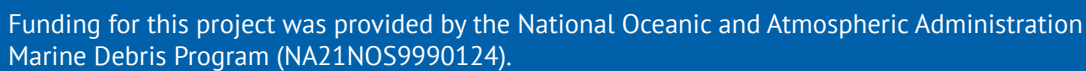
Date _____ Start _____
 # of people _____ Distance covered _____ End _____

Information about debris found on the Gulf of Maine shoreline assists with understanding the issue of plastic ocean debris and may support regional management or policy decisions.



PHOTO CREDITS

- Center for Coastal Studies
- Nova Scotia Beach Garbage Awareness
- Blue Ocean Society for Marine Conservation
- Sarah J. Thornington
- Rebecca Arnold



UMass Boston
URBAN HARBORS INSTITUTE

Design services contributed by Mica Weld.