



SAN DIEGO
COASTKEEPER®



SURFRIDER
FOUNDATION.
SAN DIEGO COUNTY

SAN DIEGO COUNTY

2022 MARINE DEBRIS REPORT

OVERVIEW

The Surfrider Foundation San Diego County and San Diego Coastkeeper partner each year to host volunteer-powered beach and park cleanups across San Diego to address the issue of trash on our beaches and in our oceans. In addition to hosting approximately six monthly cleanup events, both organizations host special cleanup events and encourage individuals to host their own.

In 2022, our beach cleanups empowered 4,028 volunteers to remove 8,734 pounds of trash from our parks and coastline. Additionally, they collected data on 112,954 separate pieces of trash.

Based on data collected from 208 separate cleanup events, this report provides a detailed picture of the waste we found on our beaches and parks this year. The top items found include cigarette butts, EPS foam fragments (i.e. styrofoam), and plastic fragments (i.e. microplastics). No area is immune to trash, but certain areas are hotspots for our efforts; in particular, Mission Bay - Fiesta Island, Otay Valley Regional Park, and Mission Beach - Belmont Park.

Our shared Beach Cleanup program has removed 127,977 pounds from our beaches and waterways since 2007.

In addition to beach cleanups, Surfrider and Coastkeeper are committed to stopping coastal pollution before it reaches our beaches and ocean; this includes fighting for better management practices, waste reduction efforts, integrated water management, and other local and large-scale, systemic changes. At the end of the report, we will touch upon cleanup efforts in the larger context.

Beach cleanups remain the most impactful way of removing trash off San Diego beaches once it is already there, and we are proud to continue to lead this effort. Read on to discover what we and our volunteers found on beaches this year, where we found it, and how our network of community activists is making a difference.





DATA

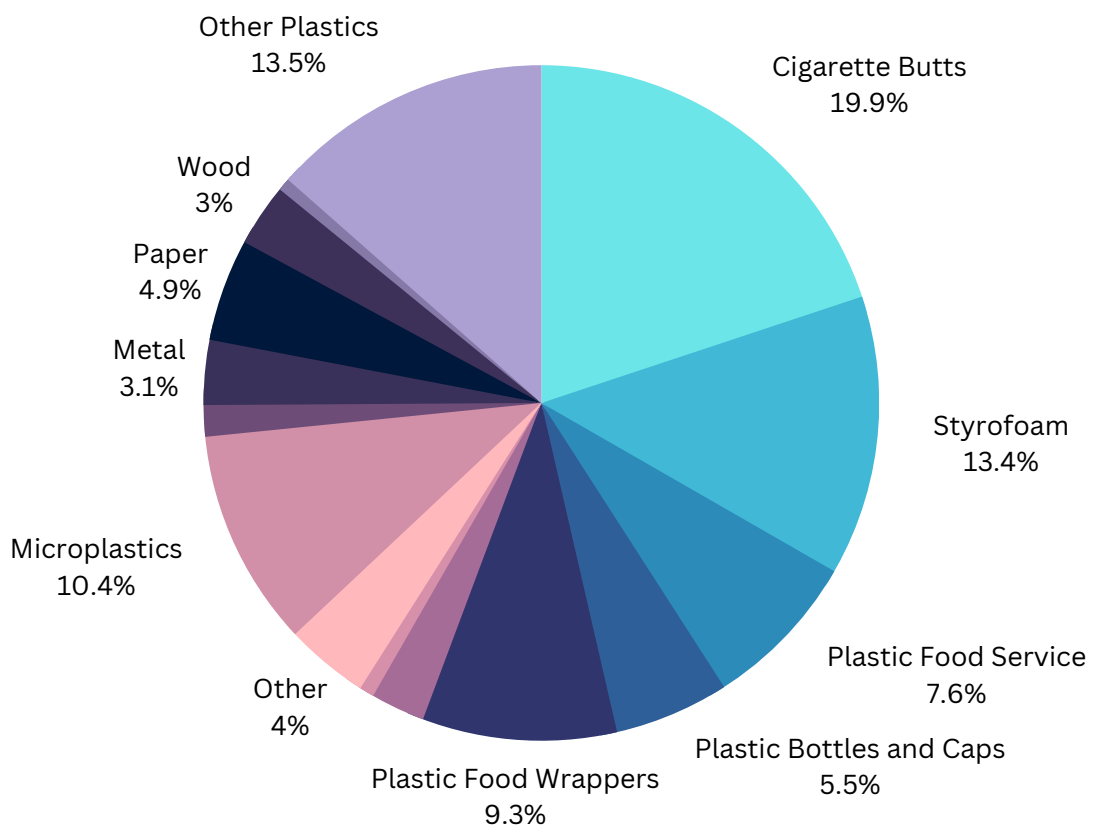
The vast majority of trash we find is made from or contains plastic. This year, plastics accounted for 76,998 of the 112,954 items collected across 208 separate beach and inland cleanups. Of that total, over 99% were single-use plastics, items like bags, straws, and bottles designed to be used once and discarded. Additionally, 36% of the plastics found were categorized as microplastics. Microplastics are fragments of plastic less than 5mm in length, and pose major threats to the environment due to their size.

Plastics are particularly damaging to the marine environment, as they do not biodegrade, and are easily mistaken as food and ingested by - or pose an entanglement risk to - wildlife.

66.43% of debris collected was plastic.

While there is no single, scientifically agreed-upon metric to determine the cleanest and dirtiest beaches, we prefer to stress the "quantity of items" collected over the total weight. As the pie chart illustrates, our top items of concern are virtually weightless and make up the majority of debris collected at each cleanup, whereas one heavy item - i.e. a mattress, a water-logged surfboard, or a discarded appliance - will effectively skew the total weight of any single cleanup effort.

2022 BEACH CLEANUP ITEM COUNT



DATA

In 2022 our beach and park cleanups averaged 2.17 pounds per volunteer with an overall 8,734 pounds of trash removed.

TOP THREE ITEMS OF CONCERN



22,436 Cigarette Butts



15,185 Styrofoam Fragments



11,675 Microplastics

Cigarette butts topped the list again in 2022. Unfortunately, cigarette butts are the #1 most littered item in the world (Truth Initiative, 2017), and San Diego's coast is no exception. It is estimated up to 4.5 trillion cigarette filters are littered every year (Bonanomi, 2015). Butts remain the most prevalent type of debris found at our beach cleanups, a position they have held since 2007 when we started logging data. In 2022, volunteers removed 22,436 cigarette butts from our beaches. Despite laws banning smoking at every city-managed beach in the county, cigarette butts accounted for 19.9% of the items collected (almost one out of every five).

Butts are a major concern for the health of San Diego County beaches. They are non-biodegradable and leach toxins, dangerous chemicals, and carcinogens into the water, poisoning marine life and beachgoers alike. They also easily move through city stormwater systems, entering roadside storm drains and traveling miles underground through conveyance infrastructure to outfalls along the coast. Because stormwater is untreated, littered butts from all over the county find their way to the beach eventually.

Single-use cigarette filters take up to 26 years to decompose, however if not exposed to sunlight i.e. sinking to the ocean floor) they will stop the process of decomposition. In addition, the single-use filters will continue to give off harmful chemicals that can affect microbes, insects, fish and mammals, if not fully decomposed.



DATA

Expanded Polystyrene (EPS) Foam

15,185 pieces of Expanded Polystyrene (EPS) Foam were recorded in 2022.

Many of the plastics collected were pieces less than one inch in diameter, and much of it was expanded polystyrene foam, or Styrofoam®. Due to its delicate nature, EPS foam food ware easily breaks down into tens, hundreds, or even thousands of smaller pieces. Once that occurs, it becomes exceedingly difficult - and often impossible - to identify, separate and remove EPS foam debris from shell fragments and sand. In 2022, EPS foam accounted for 13.4% of the total items found at our cleanups.

Surfrider and Coastkeeper have been strong advocates for local ordinances restricting the use of styrofoam and other harmful single-use plastics. In June of 2022, California Governor Gavin Newsom signed SB 54, which requires 100% of packaging in California to be recyclable or compostable, a 25% decrease in plastic packaging, and 65% of all single-use plastic packaging to be recycled by 2032. In addition, California Governor Gavin Newsom also signed AB-1276, which only allows restaurants to provide disposable food accessories upon customer request. With foam bans in Encinitas, Solana Beach, Del Mar, Imperial Beach, San Diego, Vista, San Marcos, and Carlsbad we hope this number will decrease in 2023.

Plastic Bags, Food Service Products, and Wrappers

Beach cleanup volunteers collected over 10,500 plastic food wrappers, over 8,500 food service products (straws, take out containers, and utensils), and almost 3,000 plastic bags, **accounting for 19.5% of the total items removed.** While the state bag ban and local bag ordinances have helped, our data shows that single-use plastic bags continue to plague our beaches and streets.

Meanwhile, our data clearly highlights that individually-wrapped snacks, bars, candy, etc., constitute an even more significant pollutant to our beaches. Contrary to the cases of shopping bags, EPS foam, and straws, there has been little policy advocacy or educational initiative behind this particularly problematic form of single-use plastic pollution.

Due to their disproportionately dangerous impacts on marine wildlife, limiting plastic bags and wrappers should continue to be encouraged and enacted. Bags and wrappers easily break down in the environment into smaller pieces - similar to EPS foam - which further compounds the problem. Thankfully, beginning June 1, 2022, restaurants may only offer disposable food accessories upon customer request - even for takeout and delivery orders - a huge step towards reducing plastic waste throughout the state (California Department of Health).



A TRUE COMMUNITY IMPACT



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Surfrider and Coastkeeper would like to thank each of the 4,000 plus San Diegans and visitors who contributed to this large-scale collective effort to clean our coastline. Removing 4.37 tons of debris from our beaches and parks is no small feat; for the record, each and every one of the over 112,000 items removed presented a real threat to our ocean ecosystem. We hope every participant feels proud of their contribution to the coastline and oceans.

Furthermore, the cumulative impact ripples far beyond the actual trash removed from San Diego beaches. Volunteer-collected data contributes directly to this report, which we hope will serve as an educational resource regarding the larger issue of plastic pollution. Beach cleanup data informs education, outreach, and policy advocacy to target and reduce the most prevalent forms of debris in our environment.

Ultimately, the goal of our shared beach cleanup program is not simply to remove trash from our shores, but to drive change that prevents it from reaching the beach in the first place. Without reliable data, none of that would be possible.

CONCLUSION

Beach Cleanups in the Larger Context

Beach cleanups provide a fun, accessible, and educational community service opportunity for thousands of San Diegans every year. Despite this, it is important to remember that our coastal communities would rather enjoy pristine beaches than be constantly called upon to clean them.

Even one piece of trash on the beach is one piece too many.

Our beach cleanup programs shed a local light on a global problem, the origins of which are far more complex than the common perception that we have a “litter problem.” While litter from careless individuals certainly contributes to dirty beaches, it only scratches the surface of a much more important question - where does all this trash come from?

The short answer is that we produce exponentially more waste than at any other time in history; this amount is only forecasted to grow if current trends persist (Kaza et al. 2018). An increasingly large percentage consists of single-use, disposable, and “throwaway” items from plastic. Unfortunately, the amount of trash we produce overwhelms any chance we have to properly dispose of it. Much of it ends up in the natural environment, where the ocean is often the final destination.



Sources:

Bonanomi, Giuliano, et al. “Cigarette Butt Decomposition and Associated Chemical Changes Assessed by 13C CPMAS NMR.” PLOS ONE, vol. 10, no. 1, 2015, <https://doi.org/10.1371/journal.pone.0117393>.

“New Single-Use Food Ware Bill Means Less Waste for California Restaurants.” New Single-Use Food Ware Bill Means Less Waste for California Restaurants | City of Hayward - Official Website, 22 Mar. 2022, <https://www.hayward-ca.gov/discover/news/mar22/new-single-use-food-ware-bill-means-less-waste-california-restaurants>.

CONCLUSION

Beach Cleanups in the Larger Context

In the larger context, the most effective approach to clean beaches is to generate less trash. This approach, often referred to as “source reduction,” is especially relevant in the case of plastics that do not biodegrade in the natural environment. Most of the single-use plastic items we have come to rely on can be replaced with long-lasting, reusable alternatives. For those that cannot, biodegradable materials offer an alternative with far less end-of-life impact on the environment.

Surfrider and Coastkeeper advocate for restrictions on unnecessary single-use plastics which commonly end up on our beaches and in the ocean. Solana Beach, Encinitas, Del Mar, San Diego, Imperial Beach, Vista, San Marcos, and Carlsbad have all passed ordinances that restrict either single-use plastic bags, EPS foam containers, plastic straws, or all three. We will continue to advocate for more comprehensive single-use plastic reduction ordinances in San Diego County.

Whether through policy advocacy, consumer demand, or a mix of both, systemic changes that attack waste at the source are possible, and ultimately more effective than reactive approaches like cleanups. For example, our data suggest that San Diego beaches would be 20-25% cleaner if tobacco companies stopped attaching a single-use filter to every single cigarette; instead, smokers who prefer filters could employ a reusable one. With one fell swoop, litter from cigarette butts would be solved.

Individuals, businesses, and governments all have a role to play in keeping our ocean clean. We invite and encourage all San Diegans to participate in our 2023 Beach Cleanup Program, and of course, to support and get involved with The Surfrider Foundation, San Diego Coastkeeper, and other organizations dedicated to the realization of clean water and healthy beaches for present and future generations



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