2019 | PLASTIC POLLUTION TO POLICY SOLUTIONS

Beach Cleanup Annual Report

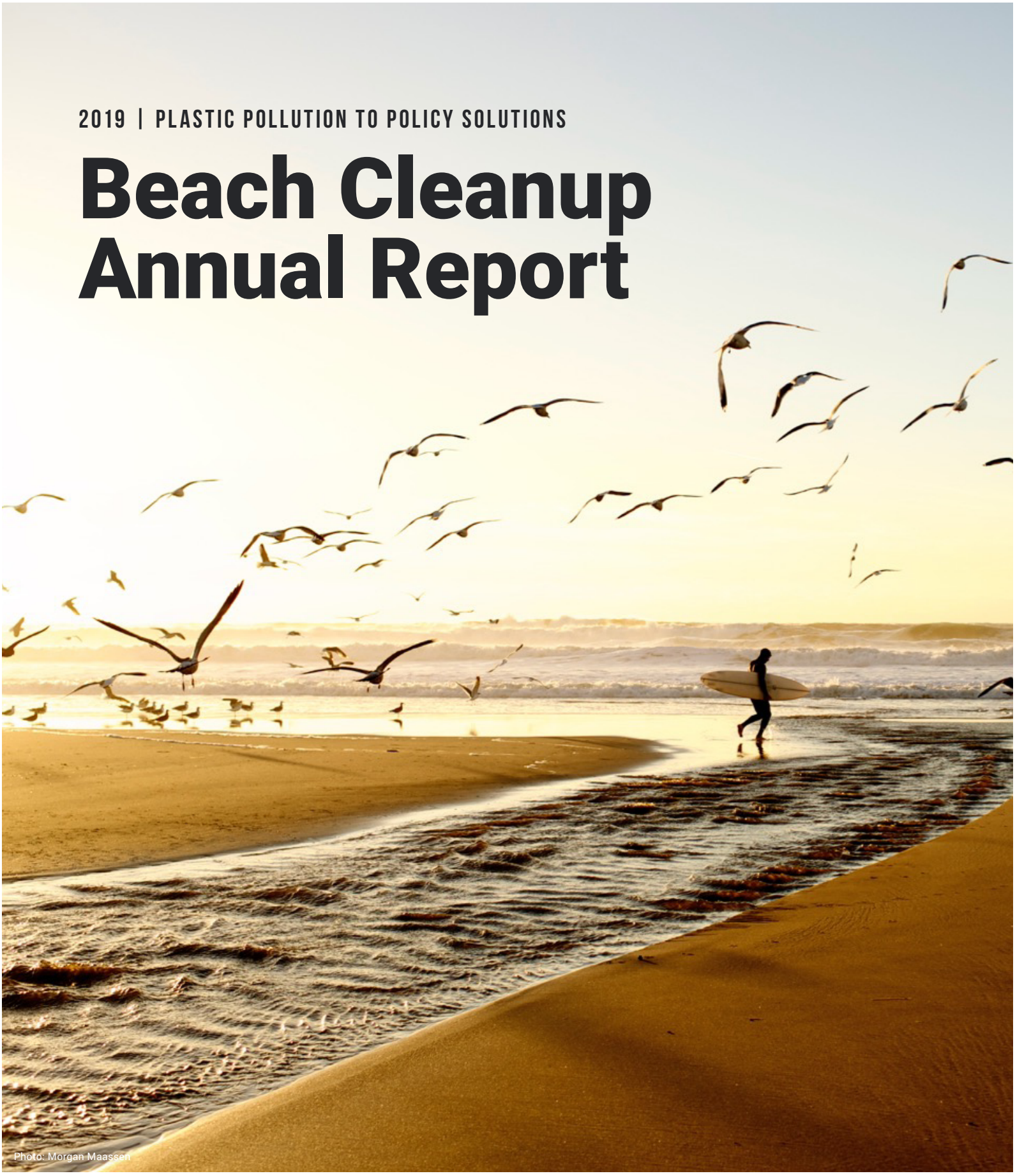


Photo: Morgan Maassen

SURFRIDER FOUNDATION

Released July 2020

Contents

Photo: Morgan Maassen

Introduction

From an immeasurable sense of well-being to healthy coastal habitats and increased tourism revenue, clean beaches contribute countless positive impacts to our lives. Similarly, littered beaches have adverse effects on the health of people, economies, wildlife and our ocean. Beach cleanups reduce plastic pollution, protect our coasts, and raise awareness about the larger issues of plastic production and over-consumption.

The Surfrider Foundation's Plastic Pollution Initiative aims to eliminate the impacts of plastics in the ocean by raising awareness about the dangers of plastic pollution and by advocating for the reduction of single-use plastics. This includes ensuring all existing plastic is reused or recycled rather than sent to the landfill, or worse, the environment. The Plastic Pollution Initiative includes both programmatic and policy work. The policy arm focuses on campaign work which has led to hundreds of successful plastic pollution reduction laws. The programmatic arm includes Surfrider's Beach Cleanup program and Ocean Friendly Restaurants program, which focus on direct action against single-use plastics.

The Beach Cleanup program is the first step in reducing the amount of plastic ending up in our waterways, on our beaches, and ultimately in the ocean. Our volunteer network conducts beach cleanups across the nation and removes hundreds of thousands of pounds of trash and recyclables each year. Without the efforts of Surfrider volunteers, this discarded waste would end up in the ocean where it could harm marine life and damage crucial ecosystems.

Beach cleanups also serve as an eye-opening experience and help to increase public awareness of plastic pollution. After seeing just how much ends up on our beaches, participants become aware of the impact our waste has on the environment, thus eliminating any "trash blindness." With the growth of the single-use mindset, our beaches and waterways have been hit by an increasing amount of plastic. This elevated awareness helps to drive citizen action and collection of data, which can be used to influence laws and work toward the ultimate goal of source reduction of plastics.

The 2019 Beach Cleanup Report aims to highlight the importance of conducting cleanups, gathering data, and using this data to influence legislation in an effort to reduce plastic pollution at the source. This report will look at how plastic impacts various coastal regions and shine a light on the items most often collected during Surfrider beach cleanups.

Surfrider's Beach Cleanup Program addresses the trash in our ocean and on our beaches, including rampant plastic pollution, through organized citizen action. The program also supports public education efforts and provides the underlying data for our plastic pollution advocacy campaigns. For more information and to see past and current beach cleanup data, visit Surfrider's beach cleanup database.

Photo: Adam Walker

Beach Cleanups Overview

Cleanup Collaboration

The direct, measurable impacts of the Beach Cleanup Program are produced by Surfrider's incredible network of passionate coastal stewards. These cleanups not only remove litter from the natural environment, but also provide an opportunity for volunteers to act as citizen scientists, collecting data to help inform and inspire positive strides for Surfrider's mission — from individual habit changes to advocating for new laws and policies that help reduce plastic pollution from the source.

The increasing impacts of the program year over year inspired the formation of a corporate partner coalition to help facilitate the continued growth and expansion of Surfrider's Beach Cleanup Program, and larger Plastic Pollution Initiative.

In 2018, the Better Beach Alliance was founded by the Surfrider Foundation and brand partner REEF, to expand and amplify the impacts of Surfrider's Beach Cleanup program, and ultimately increase the amount of trash removed, volunteers engaged and cleanups hosted each year. The Better Beach Alliance seeks to bring together and empower businesses, communities, and individuals to each play a critical role in enacting meaningful change for our planet. In 2019, the Better Beach Alliance was supported once again by title sponsor REEF alongside supporting sponsors Clif Bar and Costa.

SURFRIDER FOUNDATION. | REEF

BETTER BEACH ALLIANCE

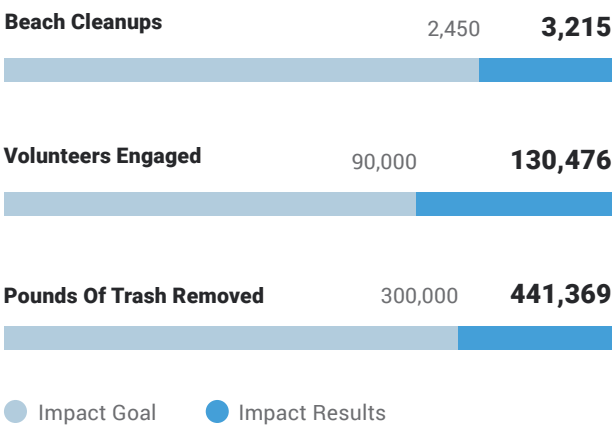
SUPPORTED BY: CLIF COSTA

In 2019, with support from the Better Beach Alliance, Surfrider (in the US) was able to increase program staff capacity, improve data reporting infrastructure, and surpass our national measurable impact goals to remove 298,932 pounds of trash from beaches and waterways during 936 cleanups while engaging 47,059 volunteers.

INTERNATIONAL COLLABORATION

The expansion of the Better Beach Alliance in 2019 marked the first time that Surfrider set collaborative, international beach cleanup goals with our affiliate, Surfrider Foundation Europe, through their established Ocean Initiatives program. Along with Surfrider Europe and our partners at REEF, we set out to collectively remove 300,000 pounds of plastic pollution and trash through the efforts of an anticipated 90,000 volunteers at about 2,450 beach cleanups across the U.S. and Europe. Together, we exceeded our impact goals with at least 3,215 beach cleanups organized, which were attended by 130,476 volunteers, resulting in an estimated 441,369 pounds of trash that were collectively removed from U.S. and European beaches and waterways.

2019 INTERNATIONAL IMPACTS



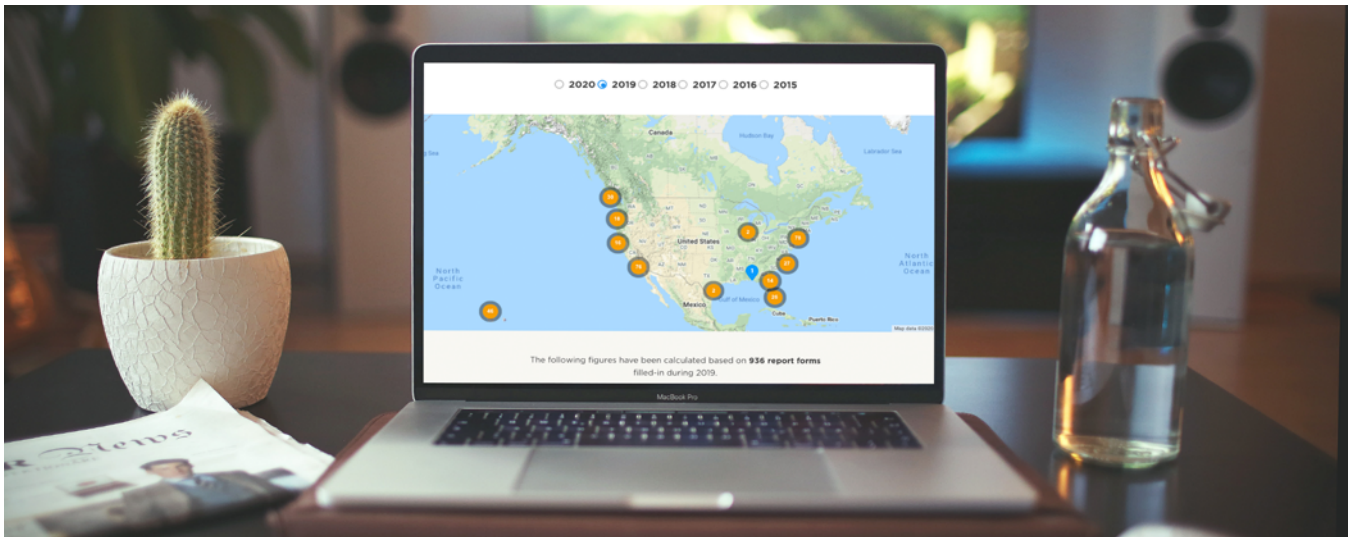
Cleanup Database

Cleanup data gives Surfrider activists critical insight into what items are often found on beaches and the tools to create meaningful change, both locally and nationally.

In 2019, as a result of the funding from our Better Beach Alliance partners, the Surfrider Foundation partnered with Surfrider Europe to build a platform for inputting beach cleanup data. With a goal to elevate Surfrider as a leader in beach cleanups and a resource for plastic pollution data, our teams worked to create a user-friendly database to track and showcase beach cleanup findings. This database has helped to create a streamlined process for collecting and reporting data while showcasing Surfrider's overall impacts across the nation and Europe.

Data collection and reporting is a crucial element of the Beach Cleanup Program. Without the data, the effectiveness of the program would decrease and beach cleanups would be a reactionary response to plastic pollution. Whereas with the data, we are able to work proactively to reduce plastic pollution before it gets to the beach. Beach cleanup data can be used in a multitude of ways, from identifying 'hotspots', to influencing laws that reduce the use and production of single-use plastics to tracking trends in trash data to show the effectiveness of policy in keeping plastics off of the beaches in the first place. It gives Surfrider activists critical insight into what items are most often found on beaches and the tools to use this data to create meaningful change, both locally and nationally.

Surfrider's beach cleanup database allows for easy data reporting across our network of chapters and student clubs. Staff and volunteers are able to store their data in one space, share results with their communities and get a clear picture of what is happening on local beaches. This fosters a sense of ownership and a drive to continue fighting against single-use plastics. Beyond that, the database helps to create a feeling of unity across the network by also showing national beach cleanup results. When our network is collectively inputting data, the greater the impacts are and the stronger Surfrider is as an organization. Thousands of volunteers, over a hundred student clubs and 80 chapters, one Surfrider.



Program Results

Across the U.S. and Canada, Surfrider's network was able to collect an immense amount of plastic from the waterways and beaches last year, and prevent that waste from entering into the ocean. Apart from working to increase the amount of waste removed, we wanted to know more about what was being found. We encouraged data collection during beach cleanups to gain a clear picture of what is ending up on our beaches and how we can direct our actions to reduce pollution at the source.

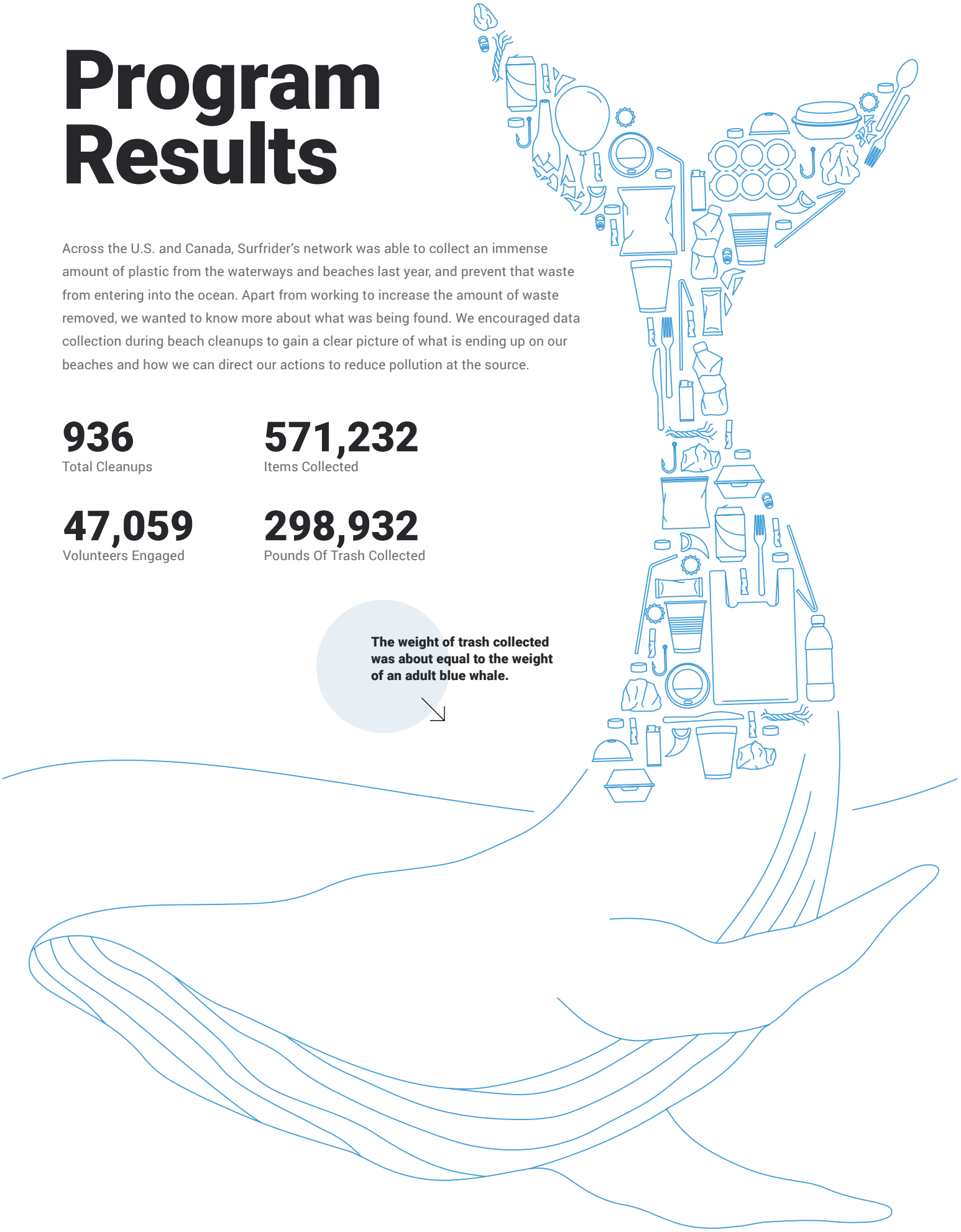
936
Total Cleanups

571,232
Items Collected

47,059
Volunteers Engaged

298,932
Pounds Of Trash Collected

The weight of trash collected was about equal to the weight of an adult blue whale.



A Closer Look

TOP ITEMS COLLECTED

144,369
Plastic Fragments

20,923
Food Wrappers

123,740
Cigarette Butts

17,611
Yards Of Rope

99,231
Foam Fragments

13,940
Bottles

35,712
Bottle Caps & Rings

13,463
Plastic Straws

BROAD USAGE CATEGORIES

45%
Fragments

3.9%
Fishing Items

21.9%
Smoking Waste

3.9%
Other

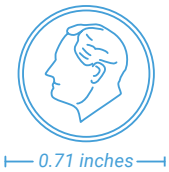
16.5%
Packaging

2.9%
Consumer Goods

5.7%
Foodware

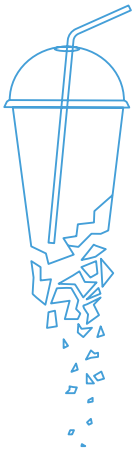
0.2%
Sanitary & Medical

FRAGMENT BREAKDOWN



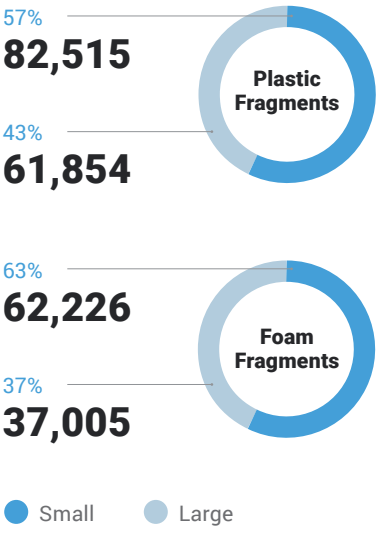
Small Fragments
Smaller than a dime

Large Fragments
Larger than a dime



90%
Items Collected Were Plastic

25%
Items Collected Were Small Plastic Fragments



The results from Surfrider's 2019 Beach Cleanup Program confirmed our current reality that plastic is the most common material found on the beaches and the percentage of microplastics continues to increase. Nine out of the top ten items collected on the beaches were plastic and 25% of all items collected were plastic fragments smaller than a dime.

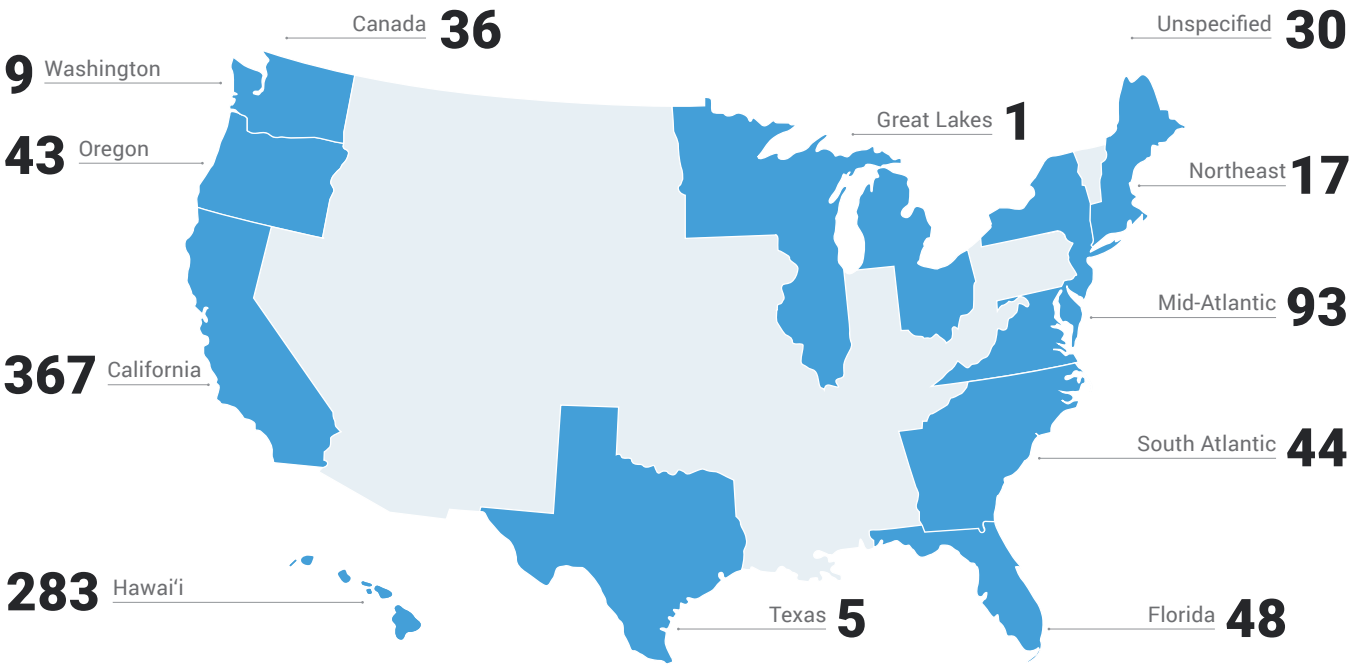
Our findings also demonstrate that plastics are constantly breaking into smaller pieces, which means the material will become increasingly more difficult to remove them from our waterways. This is yet another reason why we must urgently work to decrease the amount of single-use plastics being produced and reduce plastic at the source.

Regional Impacts

With 80 chapters across the U.S. and Canada, the Surfrider Foundation is in a unique position to gain insight and gather data from a variety of regions. We are able to track what items are ending up where and how they are impacting local communities.

Our network of chapters is also able to tailor the Beach Cleanup program to fit various regions and find the best ways to engage volunteers and activists in the grassroots fight against single-use plastics.

CLEANUPS BY REGION



PERCENT OF TOTAL CLEANUPS

33.1% California

30.2% Hawai'i

9.9% Mid-Atlantic

5.1% Florida

4.7% Southeast

4.6% Oregon

3.8% Canada

3.7% Northeast

3.3% Unspecified

1.0% Washington

0.5% Texas

0.1% Great Lakes

Regional Stories

Hawai‘i

KAUA‘I

“Kaua‘i’s cleanup program is multi-faceted with monthly beach cleanups, rocky coastal patrols, emergency debris response, school field trips, and data collection – which is centralized and cataloged. Thousands of pounds of plastic pollution annually wash ashore in the Hawaiian Islands, mostly from commercial fishing operations, with fishing nets being one of the biggest culprits. While nets wash up along all of the islands, Kaua‘i receives a particularly high number. Situated out in the middle of the Pacific, the island is also on the front row of plastic pollution coming from the North Pacific Gyre.

In 2007, we launched the “Net Patrol” program in response to these tangled masses of ropes and lines, many weighing over 1,000 pounds. Removing them is physically demanding work, often requiring hours of digging, cutting, dragging, and hauling the nets. If left on the beach, these net masses can wind up back out to sea where they can entangle fish, monk seals, and turtles or ensnare coral heads. It’s important to get to the nets before the next high tide so the chapter maintains a hotline for people to call when they see one.

Our chapter’s program has grown to include more than 275 annual cleanups by working with local organizations, businesses, schools and resorts to bring out a team of volunteers to clean ten of the most polluted windward beaches on a rotating basis. In

2019 alone, 3,200 volunteers removed 107,215 pounds of marine debris from Kaua‘i’s shoreline, with nets consisting of more than half of the debris. Other common items include buoys, plastic fishing bins, tires, plastic 55-gallon drums and pallets. All of this is made possible by a strong, dedicated network of volunteers who go out daily to clean the beaches. The network succeeds and is strengthened by stalwart nodes such as Perry who takes on multiple roles. Perry regularly cleans the beach at Moloaa Bay and is well known to that community. When someone sees something unusual or large on the beach, they call Perry who can quickly go assess and handle the situation. He also serves on the list of volunteers who respond with their trucks when a call goes out, ready to form an impromptu team to do what it takes to get the plastic off the coast. As program co-coordinator Barbara Wiedner says, ‘If we stopped doing what we do, Kaua‘i’s beaches would look very different.’

In 2019 alone, 3,200 volunteers removed 107,215 pounds of marine debris from Kaua‘i’s shoreline, with nets consisting of more than half of the debris.

Recently Surfrider joined a Hawai‘i lawsuit forcing the EPA to recognize plastic is a pollutant. Thanks in part to the strength of Surfrider’s data, the EPA decided to avoid trial and add plastic to the list of pollutants it is responsible to regulate.

Through all of these facets, program volunteers can tell they are making a difference as they cooperate in this ever-ongoing work.”

– Cynthia Welti, Chair, Kaua‘i Surfrider Foundation

California

NEWPORT BEACH

"Within the last year, the Newport Beach Chapter of the Surfrider Foundation has gained more youth involvement, thanks to their local Surfrider Student Club programs and regularly occurring beach cleanups. Hosting two to three monthly cleanups in conjunction with the Newport Beach Farmers Market and the Newport Bay Conservancy, youth volunteers regularly comprise almost half of the public cleanup roster. Students from all over Orange County bring their volunteer forms to cleanups to count service hours toward classes and clubs.

One club in particular, the Newport Harbor High School (NHHS) Club, has been invaluable to the chapter's cleanup efforts. Led by Jax Richards, Spencer Wadsworth, and Sean Bobinsky, the NHHS Club assists with beach cleanup events, conducts data collection, raises awareness, and even started the processes of launching a plastic-free campus campaign. Jax reflected on his involvement in 2019-2020 by saying, "Not only did I learn a lot about plastic pollution and ways we can tackle this issue, but I learned a lot about educating people and inspiring them to take action."

In the first two months of 2020, more than 250 young people from middle school to college level participated in beach cleanups as part of their schools' goals to provide team building and service work opportunities.

In partnership with Orange County Public Works, the Adopt-A-Channel program further raises awareness and fosters additional youth involvement. The Newport Chapter is finalizing "adopting" a 2-mile portion of the Santa Ana River, the largest watershed in the South Coast region. This project will provide an education opportunity for local high school and college students and enable additional cleanup activities around the main route that plastic uses to reach the ocean and beaches of South Orange County. The Newport Chapter hopes to have this initiative in place by the end of 2020.

In addition to public cleanups, several school groups schedule weekday cleanups as part of their schools' goals to provide team building and service work opportunities for groups. In the first two months of 2020, more than 250 young people from middle school to college level participated, including students from Concordia University, Inspire Charter School, Crean Lutheran, and local chapters of National Charity League and the National League of Young Men."

– Sarah Burgess, Beach Cleanups Coordinator, Surfrider Foundation Newport Beach

California

SAN MATEO

"For the last few years, a couple that lives almost 20 miles inland from our beaches has established a great routine. On our regularly scheduled cleanup days, they drive over early and start their day with a long run along the beach trail. Then they come to our table, grab a bucket and head down to the ocean to collect trash for an hour. Finally, they hit a local restaurant and have a well-earned lunch. Given how far they live from the beach, it's admirable they routinely make the trek.

We have grown very accustomed to seeing Joel and Lisa each month, and we think it's a pretty clever way to make a great day of it. I asked them a couple of years ago about their routine and they said it's something they look forward to and really enjoy. The beach cleanup gives them a reason to come to the beach and the routine just evolved after the first couple of visits. Occasionally, they'll loop-in one of their kids to join, but it's something the two of them really like to do together and they have no plans to stop."

– Kari Muller, San Mateo Chapter Chair

Oregon

The Oregon coastline is home to incredible scenery and wildlife. But while you're enjoying nature, you might not notice one of the greatest threats the coastline is facing – plastic pollution. The Surfrider Newport Oregon Chapter is working to combat this and remove as much debris as possible, which is no easy task considering that much of what is found on these beaches are tiny plastic fragments.

Chapter Chair and Beach Cleanup Coordinator, Scott Rosin, is leading this effort to remove tiny plastic fragments from the Oregon coasts. Scott, an avid surfer, activist, author, forester, and more, has dedicated 25 weekends (and some weekdays) to removing harmful, tiny pieces of plastic from the beach. He focuses on the 'small stuff' – tiny pieces of plastic that most folks don't even notice on the beach – and uses screens to filter these plastics from the sand. In the first six months of 2019, the Newport Chapter engaged 1,000 volunteers to remove more than 4,500 pounds of debris from local beaches. This effort would not be a success without Scott's leadership and the dedicated volunteers who show up rain or shine to clean the beach.

Photo: Paul Haeder

Photo: Charles Mitchell

In the first half of 2019, 1,000 volunteers removed over 4,500 pounds of debris from local beaches.

Washington

"Here in Washington, our shorelines are as diverse as they are inspiring – rocky, wave-pounded tidepools, endless stretches of cool sand, remote cobblestone beaches, and calm, seal-filled bays in the Sound. Each of these amazing ecosystems are protected and preserved by dedicated volunteers working with one of the five chapters in our state. Their efforts range from the Northwest Straits Chapter located near the Canadian border, down through Seattle and Tacoma, to the Olympia Chapter in our capital city, and then back up the west shore of the Puget Sound and along the outer coast to the Olympic Peninsula Chapter. In the past year, our chapters have seen some impressive growth, and with that growth comes impressive wins for all of our coastal ecosystems. Each of our chapters tackle the unique challenges of cleanups in their area.

The Olympic Peninsula Chapter works closely with Washington CoastSavers, local tribes, and fellow Surfrider chapters to collect plastic pollution that washes up on the remote outer coasts. In 2019, they removed a literal ton of trash, and their cumulative efforts in the past six years have cleaned up roughly 13,000 lbs from these beautiful and remote places.

The Olympia Chapter treks out to the coast multiple times a year to clean the beaches of our local surf spot in Westport. They've recently merged their cleanup efforts with their local Hold Onto Your Butts program, hosting regular 'Butt Pickups' in Olympia. Volunteers scour the streets of downtown for cigarette butts, intercepting this toxic trash before it has a chance to wash into the Puget Sound. In just two cleanups so far, they've picked up 13,538 cigarettes weighing in at 15 pounds. Our more urban chapters in Bellingham, Seattle, and Tacoma work steadily to clean up too many parks and beaches to name. The South Sound chapter has consistently held monthly cleanups at different beaches in their area, firing up participation and increasing membership, including an underwater cleanup where they discovered nine deep-sixed Lime scooters!

The collective efforts of Surfrider's Washington chapters have resulted in thousands of volunteer hours and tens of thousands of pounds of trash removed from our shorelines, benefiting the health, beauty, and safety of our waterways and our communities."

– Liz Schotman, Surfrider Washington Regional Manager

In just two cleanups, volunteers have picked up 13,538 cigarettes weighing in at 15 pounds.

Massachusetts

"Surfing to Offer Kids Environmental Education (STOKEE) is one of the Surfrider Foundation Massachusetts Chapter's flagship events. For at least 19 years, the chapter has been partnering with Big Brother/Big Sister of Massachusetts Bay (along with several incredibly generous local surf and pizza shops) to bring an amazing group of kids and mentors out for a beach cleanup and surfing, often for the first time. Together, we've been able to introduce many young people, who otherwise might not have had the opportunity, to the 'stoke' of enjoying and protecting our ocean and waves. The Massachusetts Chapter was thrilled to receive an Innovative Project Award for STOKEE at the Surfrider Foundation's 2019 National Summit.


Photo: Alex Vai

This year, the cleanup cataloged 31 pounds and more than 760 individual pieces of trash.


Photo: Alex Vai

The day starts with a beach cleanup, trash sort, and data collection, led by long-time Surfrider member Stewart Dalzell, whose renowned STOKEE environmental talk is only further emphasized by taking place in front of the piles of sorted and collected plastic.

This year, the cleanup cataloged 31 pounds and more than 760 individual pieces of trash. Then, chapter volunteers team up with the kids to get everyone into wetsuits and out surfing. Even if the waves are modest (and even if some carefully timed pushing is required) virtually everyone eventually catches a wave and experiences the feeling of being moved by the ocean, both physically and emotionally.

At the end of the day, the last few participants always end up having to be basically pulled from the water. For some, neither the chill and happy exhaustion that comes from immersion in New England waters nor the lure of pizza is quite enough to overcome their newfound obsession to stay out just a bit longer and try to catch another wave!"

– Alex T. Vai | Vice-Chair and Campaigns Coordinator, Surfrider Foundation Massachusetts Chapter

Connecticut

"One of our more interesting beach cleanups didn't take place at a beach, it was a river cleanup in New Canaan. We partnered with Planet New Canaan, New Canaan High School Eco-Club, Save Our Seas Club and the New Canaan Nature Center. The entire state of Connecticut is a watershed which drains into Long Island Sound, so our chapter makes it a point to include inland communities in our "beach" cleanups. These inland cleanups give us a great educational platform to drive home the fact that we are all connected and plastic anywhere is plastic everywhere. Stream to river, river to Sound, Sound to ocean.

One key finding was the incredibly high number of plastic gardening planters we found discarded into the river valley – which we traced to the private residences on the ridgeline above. Landscapers and careless residents simply tossed their plastic gardening items down into the ravine. Planet New Canaan was able to use this information to persuade the town transfer station to accept plastic gardening pots and help to keep them out of our environment."

– Chair, Surfrider Foundation Connecticut

Florida

"Dani Weatherholt, a midfielder for the Orlando Pride Soccer Team, reached out to the Orlando Chapter to organize a beach cleanup with the team. Dani used to live in California and said that she would participate in Surfrider cleanups on the West Coast, so that's how she knew to reach out to us. We scheduled the cleanup for Wednesday, October 2nd at Lori Wilson Park in Cocoa Beach and partnered up with the Sebastian Inlet Chapter. There was a great turnout with around 30 volunteers and everyone seemed really excited to clean up the beach! We walked down to Coconuts, an Ocean Friendly Restaurant, to celebrate our success and then shuttled all of the volunteers back."

– Sarah Dillon, Surfrider Orlando

South Carolina

CHARLESTON

"A wave of ocean-friendly ordinances began in Charleston in 2015 with a ban on single-use plastic bags in the small island town of Isle of Palms. Since that day, 16 other municipalities across the state of South Carolina have successfully acted to reduce their use of single-use plastics. Some ordinances, such as the one passed by the City of Charleston in 2018, have gone further than single-use plastic bags, also ending the use of plastic straws and foam products.

At town, city, and county council meetings over the past five years, members of the Charleston Chapter of the Surfrider Foundation stood alongside fellow environmental organizations and everyday citizens to share their concerns for the local environment. Nothing was more invaluable in lifting their voices than the data collected at litter sweeps across Charleston.

The Charleston Chapter was able to record an 80% reduction in single-use plastic bags on the beach after new laws went into effect.

Volunteer-led record keeping at each cleanup made it simple to show council members that many single-use plastic bags, plastic straws, and foam cups were ending up in Charleston's marshes and waterways, threatening not only wildlife but also a local economy depending on tourism and healthy fisheries.

Additionally, the Charleston Chapter recognized the importance of recording the impacts of these ordinances. To do so, they began holding regular cleanups of the same stretch of Folly Beach, allowing them to record an 80% reduction in single-use plastic bags on the beach after new laws went into effect. They have since collected similar numbers for sites across Charleston County, proof of success that has helped to pass more ocean-friendly ordinances. The Charleston Chapter is currently working to fight the most common type of plastic found during their cleanups, the cigarette butt. A new wave is taking shape back on the small island where it all started. In December 2019, the Isle of Palms City Council voted to ban smoking from their beaches, again setting the example for communities across South Carolina to take local action for clean water."

– Kaitlyn Hackathorn, Vice Chair, Charleston Surfrider Foundation

North Carolina

BOGUE BANKS

"Surfrider's Bogue Banks Chapter hosted 18 cleanups last year, which included a total of 1,301 volunteers. Together, we were able to pick up over 2,900 pounds of litter off of our beaches, islands, and waterways! In addition to this, we were able to document much of it, get the word out across our social media platforms, and cultivate a community of activists in our area. We're happy to see individuals increasingly picking up plastic on their own time.

Some common items we find here along Bogue Banks include cigarette butts, straws and straw wrappers, plastic food wrappers, artificial bait, beach gear tags, childrens' toys, and microplastics. Although picking up plastic doesn't solve our waste and recycling issues, it's become a hands-on way for us to exemplify the problem within our community."

– Jen Welborn, Vice Chair, Surfrider Foundation Bogue Banks

In 2019, Surfrider's Bogue Banks Chapter hosted 18 cleanups, in which a total of 1,301 volunteers were able to pick up over 2,900 pounds of litter.

Texas

TEXAS COASTAL BEND

"We do a lot of normal beach cleanups, but searching for nurdles puts you on a different scale, right down near the sand. It feels kind of like a treasure hunt, but eventually you remember that you're finding evidence of gross industrial pollution instead of treasure. One unique Nurdle Patrol I went on was on San Jose Island with Jace Tunnell, who started nurdlepatrol.org. After traveling to the tip of Florida and back, and stopping at numerous places along the way, it became clear that guy has a good eye for nurdles!

One thing I can say is that when you start looking for nurdles along the high tide line on Coastal Bend beaches, it's unusual not to find them. Sometimes, you'll find five of them in 10 minutes of searching, but other times it's 50 or more. It's really sad to think about all the shorebirds, crabs, fish and sea turtles that might also be finding them and mistaking them for food."

– Neil McQueen, Vice Chair,
Texas Coastal Bend Chapter, Surfrider Foundation

Photo: Jace Tunnell

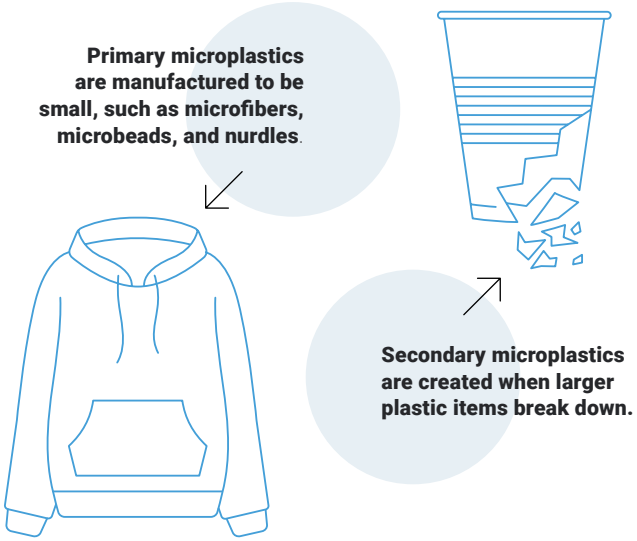
Emerging Science

The field of plastic pollution is constantly evolving and we are always learning more about plastics. Whether it's discovering new sources of plastic pollution or better understanding the impacts of certain types of plastic debris, it's crucial to remain vigilant on emerging science. While the plastic crisis is enormous, some of the smallest pieces of plastic create the most difficult puzzles to solve. Microplastics and pre-production plastic pellets ("nurdles") are two forms of small plastic pollution.

Microplastics

The National Oceanic and Atmospheric Administration (NOAA) defines microplastics as a plastic particle "less than 5 millimeters in length (or about the size of a sesame seed)." According to NOAA, there are two classifications of microplastics: primary and secondary. Primary microplastics are manufactured to be small and include microfibers, microbeads and nurdles, while secondary microplastics are created when larger plastic items break down and are the result of plastic debris. Microplastics have been found everywhere – from remote areas of the globe to even inside our own bodies – and their microscopic size is creating immense challenges and wreaking havoc on the planet. As Surfrider's 2019 cleanup data shows, one quarter of all items collected were tiny plastic fragments.

A major problem with all types of microplastics is their size. Because they are so small, microplastics are not able to be captured in traditional wastewater catchments or sewage treatment plants. They are easily transported by natural systems and are extremely difficult to remove from the environment once deposited. With ineffective prevention, microplastics often end up in the ocean. From there, these tiny particles can be ingested by marine life and cause major health complications (Choy and Drazen 2013). They can also travel across the ocean in gyres or across continents in wind, and have even been found in tap water, beer, and sea salt (Kosuth et al. 2017, Liebezeit and Liebezeit 2014, Yang et al. 2015). While scientists across the globe are working to develop effective methods to remove microplastics from our environment, this will likely be a problem we face for decades.



Microplastics, and plastics in general, are full of toxic chemicals. According to the Environmental Protection Agency (EPA), "Plastics are manufactured with additives to enhance their functionality and performance. Toxic additives... are known to leach from plastic in the recycling process and unintentionally in the form of plastic waste in marine environments." In addition to the additives, the EPA found that "plastic waste in water absorbs many toxic chemicals… that exist in the ocean in varying concentrations." They also found that "in controlled studies, these chemicals have been shown to release from plastic after it is ingested by a variety of marine species," meaning that whatever consumes the plastic could also absorb the chemicals from the material. While the long-term effects of these chemicals are largely unknown, the EPA found that "microplastics containing additives and toxic chemicals have been shown to degrade health and cause mortality." Not only are these chemicals harmful to the wildlife that consumes them, but many toxins are also known to bioaccumulate in the body. This means that they work their way up the food chain, eventually reaching humans.

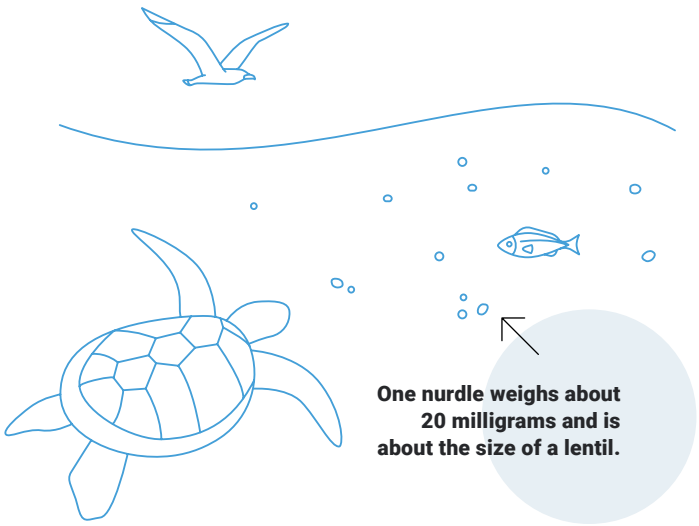
Microplastics are an emerging area of study and new information is always coming to light. While we may not know exactly how to best remove existing microplastics from our environment, we can work toward preventing new microplastics from entering in the first place. From reducing our overall plastic use to improving filtration and catchment systems, to passing legislation similar to the Microbead-Free Waters Act of 2015, we can all work to reduce microplastic pollution.

Nurdles

As discussed above, nurdles are pre-production plastic pellets and are considered a primary microplastic. They are manufactured and sent to the producers of plastic products who melt them down to create new products. However, whether through transfer losses or spills, nurdles are entering the environment and ending up in our waterways. For something with such an innocuous-sounding name, these tiny plastic pellets are having devastating impacts to wildlife and the marine environment.

According to The Great Nurdle Hunt, it is estimated that close to 230,000 tons of nurdles are entering our ocean each year. For reference, one nurdle weighs about 20 milligrams and is about the size of a lentil. Once nurdles enter the environment, their tiny size and minimal weight makes for easy and widespread distribution. One 2017 weekend survey "of 279 beaches around the UK found that almost three-quarters of them were littered with nurdles."

It is widely known that wildlife often consume plastics which are mistaken for their normal food source, and nurdles are no different. As stated by The Great Nurdle Hunt, "Due to their size, and often clear colour, nurdles can look like fish eggs or other small animals which makes them particularly attractive to seabirds, fish and other marine wildlife." This means that the animal is unable to absorb any nutritional benefits from the 'food' they've consumed, despite having 'eaten.' Additionally, as previously mentioned, plastics contain and collect a variety of chemicals which can bioaccumulate and move up the food chain when consumed by wildlife. These combined factors can lead to an assortment of complications and even death.



Nurdles are not a new form of microplastic and have long been a part of plastic production, but steps are being taken to address this problem and manufacturing companies are being held more accountable. Just last year, a petrochemical company, Formosa Plastics Corp, was found liable for illegally dumping billions of nurdles into natural waterways and agreed to a $50 million settlement in Port Arkansas, Texas. This historic settlement was the largest ever brought by private citizens under the federal Clean Water Act. The success was in large part due to beach clean up data provided by a citizen science group called the Nurdle Patrol. The Texas Coastal Bend Surfrider members also worked together with the Nurdle Patrol to collect information on the location and count of nurdles while removing them.

As we learn more about primary microplastics and their long-term environmental and human health impacts, we must find solutions to microplastic pollution. While nurdles are only one type of primary microplastic, the staggering amount of nurdles that end up in the environment each year helps to frame the larger issue – plastic pollution is a global crisis. It is having wide-spread effects on humans, wildlife and ecosystems and we must act to address this crisis with large-scale sweeping changes. The less plastic we use, the fewer nurdles are needed and the fewer will end up as microplastic pollution.

A Microplastic Journey

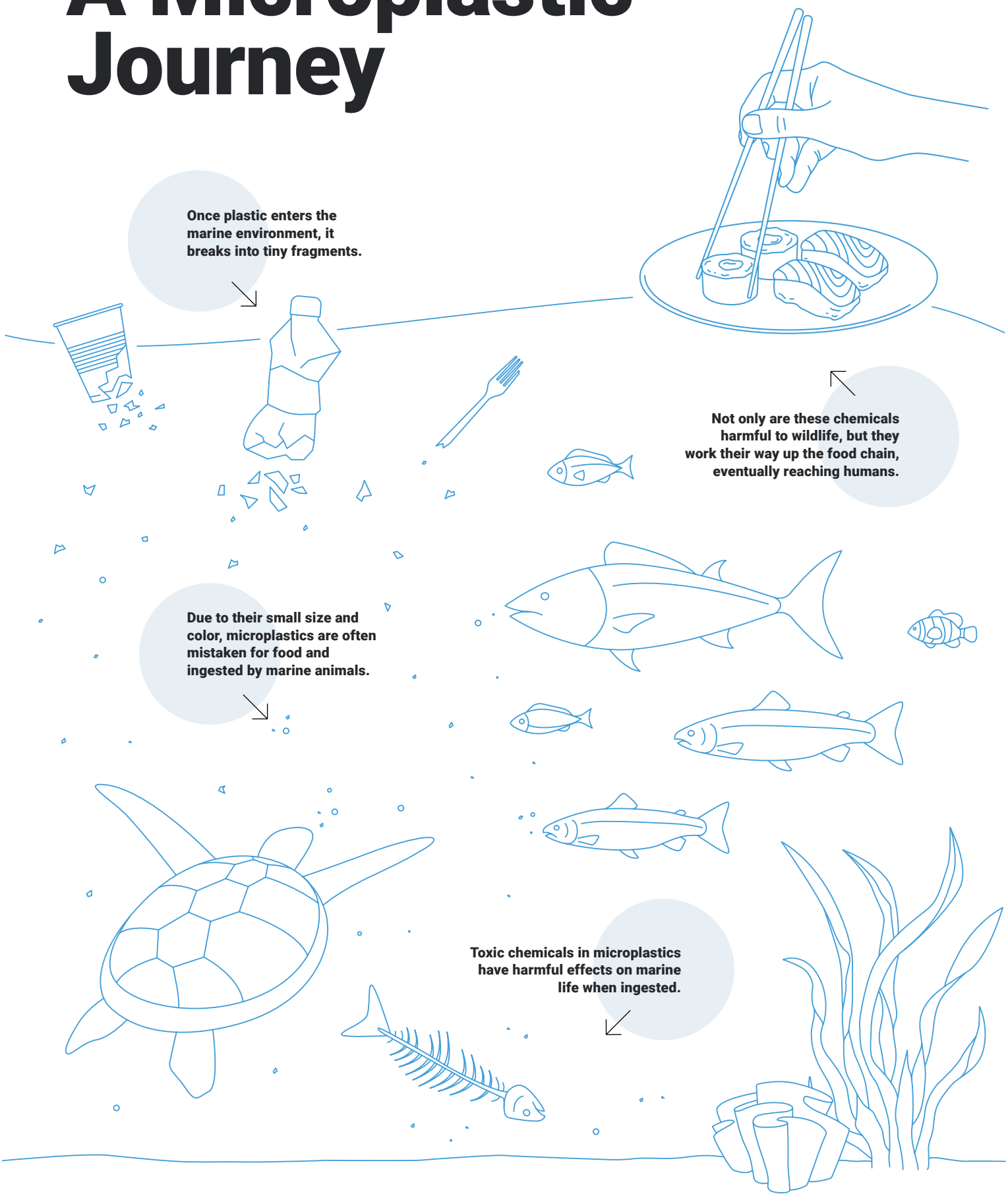



Photo: Alexander Siegel

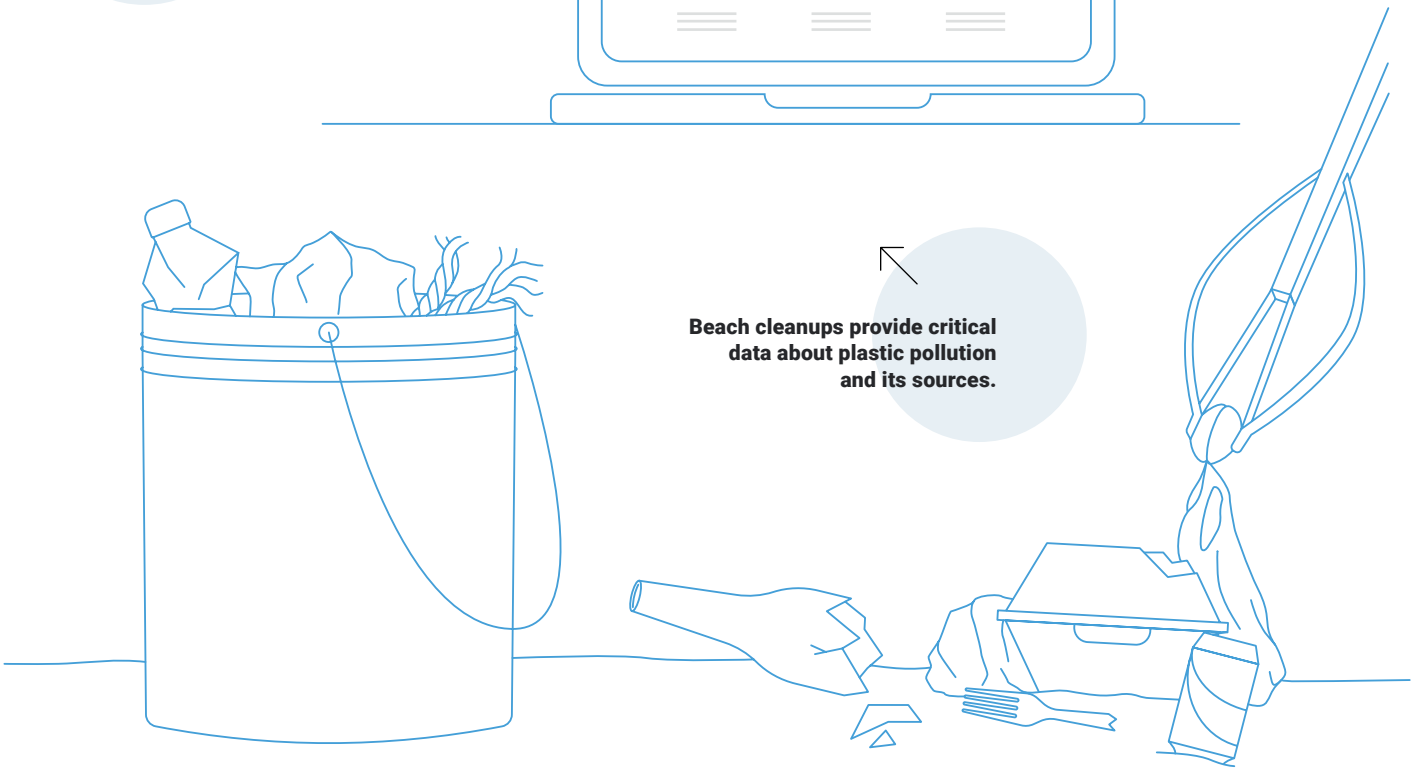
Beach Cleanups & Policy

Pollution To Policy

Beach cleanups are a great way to foster community involvement and collect information about what items are ending up on our beaches. But it is after the cleanups are over that we can make a lasting impact by using beach cleanup data to support policy work.

Cleanup data allows us to fight for better local, state and federal policies to reduce pollution at the source.

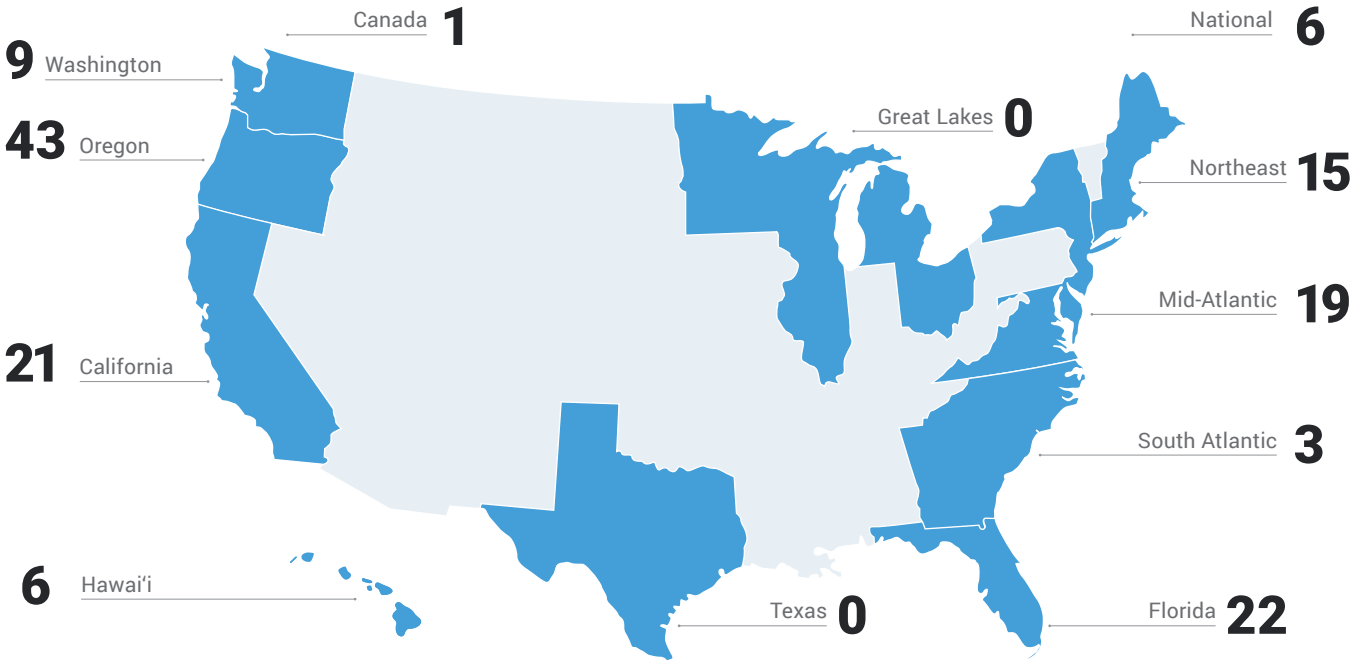
Beach cleanups provide critical data about plastic pollution and its sources.



Campaign Victories

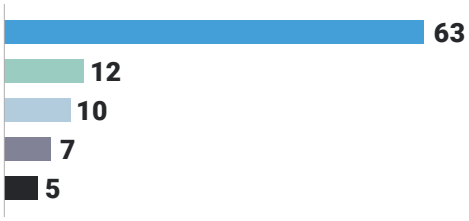
The Surfrider Foundation is actively engaged in policy work at local, state and federal levels. When advocating for policies, it's critical to cite relevant statistics and key studies in support of plastic pollution bills. The beach cleanup data is vital in making the case to reduce single-use plastics as many items that a policy focuses on, such as plastic bags, cigarette butts and straws, tend to be on the top ten items collected at beach cleanups. Furthermore, just as we can use the data to direct new policy efforts, we can also use the data to track the success of policies. Just last year, there were 97 coastal victories, including 63 plastic pollution wins.

VICTORIES BY REGION



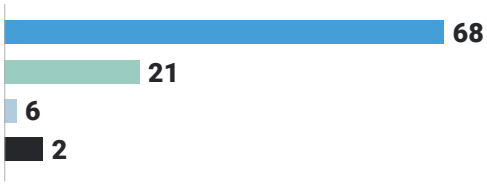
97
Total Victories

VICTORY TYPE



Plastic Pollution · Ocean Protection · Clean Water · Coastal Preservation · Beach Access

VICTORY SCOPE



Local · State · Regional · National

Victory In Hawai'i

Local campaigns that focus on a single type of plastic can lay the groundwork for other campaigns to follow and inspire more comprehensive bills to create widespread change. One example of that is the work of the Surfrider Foundation's Hawai'i chapters, who have led a decades-long fight against single-use plastics that has resulted in the passage of Bill 40 on the island of Oahu.

Over the last decade, Surfrider Maui has been working tirelessly on campaigns to ban common consumer plastics, specifically single-use plastic bags, cigarette butts, and polystyrene food containers. Using beach cleanup data, which showed evidence of these consumer items on the beaches, Surfrider Maui was able to present cleanup findings in support of these bans and help to fight for their victory. In fact, after a four-year battle, Maui was the first county in Hawai'i to pass a polystyrene bill and helped to set the framework for other counties to follow.

However, this approach requires an immense amount of time and dedication, and can take years of fighting to ban a single item. While Surfrider Maui was laying the groundwork for single item bills, Surfrider Oahu was working with other organizations on crafting Bill 40 – a comprehensive plastic ban that addressed many single-use plastic consumer items at once. Bill 40, the strongest single-use plastic ban in the nation, was approved by the Honolulu City Council on December 4, 2019 by a margin of 7 to 2. The mayor signed it into law on December 15, 2019. This law bans nearly all takeout plastic over the next two years across the island of Oahu, which is home to 72% of Hawai'i 's population.

This law bans nearly all takeout plastic over the next two years across the island of Oahu.

Bill 40 came at a time when the public was ready to see change. Plastic pollution was at the front of people's minds after years of seeing itemized bans and the continued impact of single-use plastics on the island's coastlines. It was also an opportunity to create a more comprehensive policy that addressed the complexities of plastic pollution. Beach cleanup data showed that these items were ending up on Oahu's beaches. In addition, the success of single-use plastic bans on Maui were proof that change was not only needed, but also feasible. After decades of using data to support policy change, people were aware of the pervasiveness of plastics in our environment and the groundwork was laid for Bill 40 to look at another side of single-use plastics – the human side. Bill 40 was able to focus on people and the impacts of plastics on consumers and businesses. Local youth were further able to articulate the importance of moving away from our dependence on single-use items and demonstrated the crucial need for widespread change.

The incredible victory of Bill 40 shows the complexities of the path to success and how a few local victories on other islands helped to open the door for this major win and other wins to follow. But our work isn't done yet. While Bill 40 sets the standard for comprehensive single-use plastic policy, the plastic crisis is complex and requires a multi-prong solution. We now know what is ending up on our beaches and have seen how impactful beach cleanup data is, both directly and indirectly, on plastic policy. With the improved capabilities of Surfrider's Beach Cleanup program, we are looking forward to continued victories and the plastic-free future we're fighting to see.

Conclusion

Plastic pollution is a global crisis and the Surfrider Foundation's Beach Cleanup program is one foundational way that we are working to address it. While actively removing close to half a million pounds of trash each year through our national network of citizen scientists, we are also able to collect detailed information on the hundreds of thousands of items picked up each year. Surfrider's dedicated activists can use this information to influence policy and pass legislation to reduce the overall amount of plastic used and create long-lasting, widespread change.

While Surfrider Foundation members and supporters have been successful for over three decades with an active Beach Clean Up program, 2019 was an incredible year for the program through the addition of new technology and partners that launched the effort to a higher level of sophistication and results. In 2019, we were able to host over 900 beach cleanups, activate more than 46,000 volunteers and remove nearly 300,000 pounds of trash from our beaches and waterways. Our network was able to successfully pass single-use plastic legislation at local and state levels to create meaningful change in various communities. As new issues in plastic pollution science are constantly emerging, Surfrider's commitment to science and facts helps to grow our own knowledge and share it with like-minded people and organizations. Resulting from our partnership with the Better Beach Alliance and the generous support in 2019 from our brand parters REEF, Clif Bar and Costa, the creation of the beach cleanup database has given us a platform to collect and share our impacts. The success of the Beach Cleanup program in 2019 is a tribute to our grassroots network and shows the true strength of what can happen when we work together as One Surfrider.

Thank you to all of our supporters of the Beach Cleanup program, including our national sponsors, chapter leaders and especially all of the volunteers who have taken part in beach cleanups. Only by working together can we win the fight against single-use plastics and continue working toward our collective vision of a more sustainable future."


SURFRIDER
FOUNDATION
surfrider.org