



2016 ANNUAL REPORT



The goal of Clean Ocean Action’s Beach Sweeps is to reduce and eliminate sources of litter by engaging people in volunteer efforts to clean beaches in New Jersey. During the bi-annual event, volunteers pick-up and remove debris, and record and calculate data about the debris. The data collected provides a legacy of information that can be used to identify sources of pollution, monitor trends, and discover and promote solutions.

Litter is harmful to animals that mistake it for food, or become entangled. Litter also negatively affects tourism and the coastal economy. In response, for over 30 years, thousands of dedicated, volunteers — the tall and small — gather in the Spring and in the Fall for Beach Sweeps. Citizens collect and tabulate litter to clean the New Jersey coast. By removing debris, volunteers help provide cleaner and safer beaches and waterways for wildlife and people.

During Clean Ocean Action’s (COA) 31st Annual Beach Sweeps, 3,990 volunteers removed 218,807 pieces of debris from 70 sites in 58 municipalities and parks along the Atlantic Ocean coast, bayshores, and inland rivers, lakes, and streams.

As in recent years, the most frequently collected items were plastic. In fact, over 81% of the items collected were plastic or foam plastic.



The “Dirty Dozen” resembles previous years, with persistent and harmful plastic dominating the top twelve list. Seven of the Dirty Dozen are single use, disposable plastic items, showing the prevalence and peoples’ overuse of such items.

The “Roster of the Ridiculous” continues to illustrate that one can find just about everything at the Beach Sweeps.

A day of service, a lifetime of evidence to make the ocean cleaner

This Fall, wind and rain lowered the total number of volunteers, items collected, and data recorded. Wet and soggy paper data cards are difficult to write-on and to tally. The data is just as valuable, and will be very useful in our efforts to rid our beaches of litter.

In all, the greatest success of the Beach Sweeps are the take-home lessons: citizens taking responsibility for the environment, making a difference, teamwork, unity, and commitment. The Beach Sweeps is a day of service in the Spring and Fall that provides a lifetime of data to help make a difference for the ocean.

2016 SITES



What’s Inside:

- ▶ Ocean Wavemakers: Beach Captains, Scouts, Groups, Schools, Civic Groups
- ▶ 2016 Results, Dirty Dozen, Roster of the Ridiculous
- ▶ Watershed Mindfulness
- ▶ Microplastics: The Very Small, Big Deal
- ▶ 2016 Beach Sweeps Sponsors

In total, over 115,820 people have removed over 5.9 million pieces of litter over three decades.

SPECIAL THANKS TO OUR OCEAN WAVEMAKERS

The success of the Beach Sweeps is rooted in the Ocean Wavemakers, who contribute time, effort, resources, donations, and funds.

2016 BEACH CAPTAINS (84): Franz Adler, Ryan Baine, Tina Barreiro, Jesse Beutell, Edward Bonanno, Griff Boyd, Tim Brindley, Denise Bruschi, Derek Noah, Ralph Carloni, John Clark, Bill Cleary, Ann Commarato, Lisa Cordova, Kira Dabby, Ron Dente, Fran Donnelly, Peter Donnelly, Brandi Endicott, Blake Epstein, Sandy Epstein, Adrianna Fernicola, Margot Fernicola, Robert Fernicola, Julie Finnell, Brian Fisher, Daria Fradlan, Anna Francisco, Nichole Franco, Kathleen Gasienica, Eric Gehring, Kristen Gould, Marianne Grant, Kyle Gronostajski, Kate Grossarth, Eric Hanan, Andrew Kaplan, Beth Kwart, Yvette LeFebvre, Austin Leopold, Samantha Liu, Marissa Magura, Joe Mairo, Jeff Martin, Kari Martin, Harvey McKenzie, Carol McCallum, Demaris McManus, Charlotte Moyer, Kathleen Moyer, Jessica Mumford, Kyle Mumford, Michael Palmisano, Julie Peterson, Josh Peterson, Lynn Poinier, Tasha Porras, Joe Reynolds, Derek Riddle, Michael Rohal, Ben Sammarco, Erica Sammarco, Leah Savia, Allen Schultz, Matt Schmidt, Laura Seely, Jim Sharkey, Brenda Skinner, Christian Smith, Laura Smith, Joshua Tennant, Bob Thibault, Louise Tomarello, JJ Walsh, Kay & Cassidy Warren, Tyler Whalen, Amanda Wheeler, Gretchen Whitman, Brian Williamson, Cash Woldseth, Mark Woldseth, Eugene Viereck, Ashley Woodward, Anita Zalom

SCOUT GROUPS (56):

BOY: 18, 30, 31, 33, 39, 47, 58, 65, 70, 122, 124, 157, 158, 194

CUB: 39, 40, 58, 70, 141, 145, 157, 209, 242, 634

TIGER: 70

GIRL: 29, 36, 121, 149, 190, 302, 327, 536, 680, 814, 839, 1143, 1316, 1549, 1557, 1805, 4180, 11048, 20064, 50245, 50302, 60625, 60727, 60832, 81608

BROWNIE: 186, 1059, 50061

DAISY: 942, 969, Seashore Daisies

BUSINESSES (48): Applejack's Bar, AT&T, Atlantic Artificial, Atlantic City Electric, Aveda, Baine Contracting, Bank of America, Bayshore Hospital, Benevity (Apple), Bloomberg LP, Career Opportunity Development Inc., Coca Cola, Comcast, Define Logic LLC, Deli-Cut of Sea Isle City, First Bank of Sea Isle City, Gilbane Building Company, Global Equities Technology, Gloria Nilson Realtors Rumson, Great Lakes Brewing Company, HDR, Jersey Shore University Medical Center, Johnson & Johnson, Kai Ryu Martial Arts, Kohl's, Meridian Health, Meridian Home Care, Merrill Lynch, MetLife, Montecalvo Disposal, Morgan Stanley, NJ Natural Gas, Ocean Mental Health, Ray Catena Motor Corporation, Ricoh USA, Secret Garden Spa, Servepro at Eatontown, ShopRite, Spotify, T&M Associates, TD Bank, UBS, United Teletech Financial, Viridian Energy, Verizon, Wakefern Foods Corporation, Wayside Technology, Workwave



LEFT: Written on a clean beach: Girl Scout Troop #36 in Long Beach Island

SWEEPS SNAPSHOTS



Volunteers cleaning-up a Glen Ridge creek that flows into the Hudson-Raritan Estuary, and the ocean



The plastic monster at Sandy Hook



Volunteers in Brick haul in a huge foam plastic piece



Sweepers at Brown's Wood Preserve, cleaning along the Toms River near Barnegat Bay

ORGANIZATIONS (62): AC IT, AC Surf, Alliance for a Living Ocean, Animal Friendly Organization, Antea Group, AmeriCorps – NJ Watershed Ambassadors, Atlantic Highlands Leos Club, Avon Environmental Commission, AYF Football Team, Bayshore Regional Watershed Council, Brick Environmental Commission, Cathy's Cause, Coastal Jersey Parrot-head Club, Four Seasons Village, Freehold United Network, Galloway Police Explorer Troop 276, Garden Club of Long Beach Island, Ideal Beach Community Association, Interact Club, JROTC- Golden Eagle Battalion, Jersey Cares, Keyport Baseball, Keyport Environmental Commission, Manasquan Beach Improvement Association, Manasquan River Golf Club, Middletown Girls Softball, Monmouth County Association of Realtors, Monmouth County Democratic Club, NCCM, Neighbors of Wetford, NJ Beach Buggy Association, NJ Humanist Network, NJ Windsurfing and Watersports Association, Ocean City Beach Buggy Association, Philly Surf Crew, Phlock of South Jersey, Republican Club of Lavallette, Residents of Asbury Park for Bernie, Rotary Club of Greater Long Branch, Rotary District #7540—Interact, Rumson Garden Club, Shrewsbury Power Squadron, Sierra Club, Stockton CARE, Stockton SAVE, Stockton Water Watch, Stone Harbor Property Owners Association, Surfers' Environmental Alliance, Surfrider Foundation Jersey Shore, Surfrider Foundation South Jersey Chapter, The Marine and Environmental Science Station at Info Stage, The Wetlands Institute, Teens 4 Oceans, Townsends Inlet Yacht Club, UNFI, US Coast Guard Auxiliary, Voorhees Leos Club, Women's Club of Spring Lake, Young Republicans of Monmouth

FAITH-BASED GROUPS (10): Bethany Church, Church of St. Mark and All Saints, Corpus Christi Church, Lincroft Presbyterian Church, Sacred Heart, St. Martha's Church, St. Michael's Youth Group, St. Paul's UMC, St. Thomas Youth Group, Wellspring Church

PRE/ELEMENTARY/MIDDLE SCHOOLS (30): Bayview, Bishop McHugh Catholic, Bradley Beach, Central Regional (Student Council), Deane Porter, Forrestdale, Fusion Academy, Highlands, Holy Cross, Holy Innocents, Holy Trinity, Keyport Central, Knollwood, Lavallette, Long Branch, Manchester, Monmouth Beach, Newark Academy, Oak Knoll, Oakwood, Ocean Avenue, Red Bank Charter, Rumson Country Day, St. Dominic's, St. Joseph's (Keyport), St. Mary's (New Monmouth), Somerville, The Learning Experience, Tinton Falls, Whitehall, Wildwood

HIGH SCHOOLS (60): Allied Health, Ben Franklin, Bergen County Academies, Biotechnology, Boonton, Bound Brook, Brick Township, Central Regional, Christian Brothers Academy, Colts Neck, Donovan Catholic, Edison, Elizabeth, Freehold Township, Governor Livingston, High Tech, Hightstown, Hopewell Valley, Howell, John E. Dwyer Technology Academy, Keyport, Kittatinny, Lacey Township, Lakewood, Lower Cape May Regional, Mainland, Manalapan, Manasquan, Marine Academy of Science & Technology (MAST), Marine Academy of Technology and Environmental Science (MATES), Middletown North, Middletown South, Morristown, Mountain Lakes, Neptune, North Plainfield, Ocean Township, Point Pleasant Boro, Point Pleasant Beach, Purnell, Rancocas Valley, Ranney, Raritan, Red Bank Catholic, Rumson-Fair Haven Regional, Rutgers Prep, St. John Vianney, St. Joseph's, St. Rose, St. Rose of Lima, Shore Regional, Somerset County Vocational & Technical, Southern Regional, Thomas Edison, Toms River East, Triton Regional, Verona, Wall Township, West Caldwell Tech, Wildwood, Wildwood Catholic

COLLEGES (21): Arcadia University, Brookdale Community College, Bucks County Community College, Centenary University, East Stroudsburg University, Essex County College, Fairleigh Dickinson University, Jefferson College of Health Sciences, Kean University, Monmouth University, NJ Institute of Technology, Ocean County College, Raritan Valley Community College, Richard Stockton College of NJ, Rider University, Rutgers University, Seton Hall, Stevens Institute of Technology, Syracuse University, Temple University, Union County College, University of Vermont

CIVIC GROUPS & PARKS (8): Atlantic City Firefighters, Avalon Public Works, Brick Township Council, Gateway National Recreation Area, Glen Ridge Town Council Members, Island Beach State Park, Stone Harbor Borough Council, Stone Harbor Police Department

SPECIAL CELEBRATIONS (3): Lexi's Bat Mitzvah, Christina Mennella's Birthday Beach Bash, Ben's Bar Mitzvah Project

Note: Ocean Wavemakers are taken from completed data cards. Please let us know if we have inadvertently omitted your group.



Chris String Photography

In Atlantic City, a volunteer with Philly Surf Crew finds a plastic six-pack beverage ring, which can be deadly for wildlife when caught in the rings.



A young volunteer in Ocean City is proud to help. Every piece counts!

2016 RESULTS



NOTES FOR USING BEACH SWEEPS DATA: The Annual *Beach Sweeps* Report can be used to study and understand marine debris. When analyzing, whether annually or over time for trends, it is important to note that the amount of debris collected depends on a variety of factors, such as weather, tides, participants, and accuracy. Fall 2016 participation was low due to extremely poor weather conditions.

LOCAL DATA, GLOBAL NETWORK: Every October, COA submits the Fall *Beach Sweeps* data to the Ocean Conservancy in Washington D.C., to be included in their International Coastal Cleanup (ICC) Report.

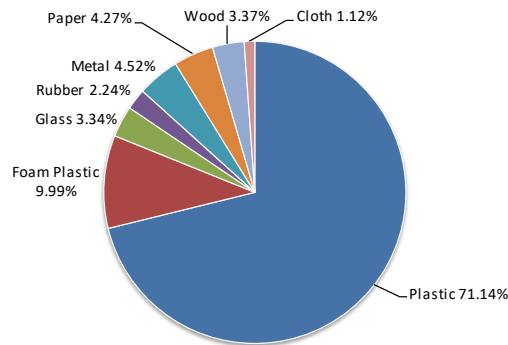
Soggy data cards, Fall 2016

					% of
	Items	Spring	Fall	Total	Total
PLASTIC	Food, Candy Wrappers/Bags	14,827	6,152	20,979	9.59%
	Store/Shopping Bags	4,100	1,464	5,564	2.54%
	Trash Bags	1,439	370	1,809	0.83%
	Other Bags	2,332	809	3,141	1.44%
	Beverages/Soda Bottles	5,508	2,696	8,204	3.75%
	Bleach/Cleaner Bottles	253	52	305	0.14%
	Other Bottles	1,176	416	1,592	0.73%
	Buckets/Crates/Bins	1,112	136	1,248	0.57%
	Cap/Lids	15,347	8,296	23,643	10.81%
	Cap/Rings	2,328	749	3,077	1.41%
	Cigarette Filters	12,861	7,358	20,219	9.24%
	Lighters	405	178	583	0.27%
	Cigarette Packaging	694	554	1,248	0.57%
	Cigar Tips	2,351	1,230	3,581	1.64%
	Bait Bags/Containers	184	151	335	0.15%
	Line	481	171	652	0.30%
	Lures, Floats	152	118	270	0.12%
	Fishing Nets - Small	139	44	183	0.08%
	Fishing Nets - Large	65	6	71	0.03%
	Cups	1,766	871	2,637	1.21%
	Diapers	82	40	122	0.06%
	Forks, Knives, Spoons	1,864	771	2,635	1.20%
	Light Sticks	303	118	421	0.19%
	Plastic Pieces	20,307	8,578	28,885	13.20%
	Pens	560	158	718	0.33%
	Ribbon/Tape (no balloons)	1,379	535	1,914	0.87%
	Rope	721	254	975	0.45%
	6-Pack Holders	130	61	191	0.09%
	Sheeting Tarps	128	69	197	0.09%
	Shotgun Shells	433	126	559	0.26%
	Strapping Bands	522	115	637	0.29%
	Straws/Stirrers	8,102	3,971	12,073	5.52%
	Syringes	145	31	176	0.08%
Tampon Applicators	1,787	540	2,327	1.06%	
Toys	725	427	1,152	0.53%	
Vegetable Sacks	85	42	127	0.06%	
Other Plastics	1,590	1,625	3,215	1.47%	
FOAM PLASTIC	Building Materials	981	84	1,065	0.49%
	Buoys/Floats	316	73	389	0.18%
	Fast Food Containers	548	207	755	0.35%
	Foam Cups	1,476	552	2,028	0.93%
	Packaging Materials	809	201	1,010	0.46%
	Foam Pieces	11,454	3,059	14,513	6.63%
	Foam Plates	545	146	691	0.32%
	Other Foam Plastic	1,183	219	1,402	0.64%

					% of	
	Items	Spring	Fall	Total	Total	
GLASS	Beverage Bottles	2,001	984	2,985	1.36%	
	Other Bottles/Jars	345	96	441	0.20%	
	Lights: Bulbs	71	9	80	0.04%	
	Lights: Fluorescent Tubes	35	2	37	0.02%	
	Pieces	2,716	387	3,103	1.42%	
	Other Glass	502	165	667	0.30%	
	RUBBER	Balloons - Mylar	988	258	1,246	0.57%
		Mylar With String/Ribbon	599	213	812	0.37%
		Balloons - Rubber	580	313	893	0.41%
		Rubber With String/Ribbon	443	221	664	0.30%
Condoms		193	66	259	0.12%	
Rubber Bands		0	95	95	0.04%	
Gloves		250	94	344	0.16%	
Tires: Part		81	24	105	0.05%	
Tires: Whole		19	5	24	0.01%	
Other Rubber		344	117	461	0.21%	
METAL	Appliances	26	11	37	0.02%	
	Batteries: Car	14	9	23	0.01%	
	Batteries: Other	124	24	148	0.07%	
	Bottles Caps	1,526	911	2,437	1.11%	
	Aerosol Cans	190	75	265	0.12%	
	Beverages Cans	1,771	946	2,717	1.24%	
	Other Cans	96	53	149	0.07%	
	Car Parts	90	8	98	0.04%	
	Crab/Fish Traps	38	28	66	0.03%	
	55 Gallon Drums: Old	10	1	11	0.01%	
55 Gallon Drums: New	1	0	1	0.00%		
PAPER	Fishing: Hooks	52	6	58	0.03%	
	Fishing: Sinkers	44	2	46	0.02%	
	Foil	335	246	581	0.27%	
	Nails	658	140	798	0.36%	
	Pieces	640	139	779	0.36%	
	Pull/Pop Tabs	275	90	365	0.17%	
	Wire	539	99	638	0.29%	
	Other Metal	530	135	665	0.30%	
	Bags	388	186	574	0.26%	
	Cardboard	707	228	935	0.43%	
WOOD	Cartons/Boxes	278	64	342	0.16%	
	Cups	826	431	1,257	0.57%	
	Newspaper/Magazines	523	175	698	0.32%	
	Paper Pieces	2,942	1,474	4,416	2.02%	
	Plates	192	84	276	0.13%	
	Other Paper	629	223	852	0.39%	
	Crab/Lobster Traps	14	45	59	0.03%	
	Crates/Baskets	35	8	43	0.02%	
	Ice Cream Spoon/Sticks	204	98	302	0.14%	
	Lumber Pieces	4,110	1,164	5,274	2.41%	
CLOTH	Pallets	203	44	247	0.11%	
	Other Wood	1,241	214	1,455	0.66%	
	Blankets/Sheets/Towels	191	84	275	0.13%	
	Clothing: Specify	250	142	392	0.18%	
	Shoes/Sandals	245	151	396	0.18%	
	String (No Balloon)	508	258	766	0.35%	
	Other Cloth	453	179	632	0.29%	

2016 Beach Sweeps	Spring	Fall	Totals
Total Items Collected	153,760	65,047	218,807
Number of Volunteers	2,733	1,257	3,990

PERCENT BREAKDOWN BY CATEGORY/DEBRIS TYPE



Breakdown by Category/Debris Type				
2016 Totals	Spring	Fall	Total	% of Total
Plastic	106,383	49,282	155,665	71.14%
Foam Plastic	17,312	4,541	21,853	9.99%
Glass	5,670	1,643	7,313	3.34%
Rubber	3,497	1,406	4,903	2.24%
Metal	6,959	2,923	9,882	4.52%
Paper	6,485	2,865	9,350	4.27%
Wood	5,807	1,573	7,380	3.37%
Cloth	1,647	814	2,461	1.12%
Pieces of Debris	153,760	65,047	218,807	100.00%
Volunteers	2,733	1,257	3,990	

DIRTY DOZEN

The most commonly collected pieces of debris

2016 Rank	Debris Items	2016	2015	2015 Rank	2014	2014 Rank	2013	2013 Rank
1	Plastic Pieces	28885	42793	1	40880	1	39484	1
2	Plastic Caps/Lids	23643	34426	2	29804	3	32642	2
3	Food, Candy Wrappers/Bags	20979	33405	3	27381	4	30944	4
4	Cigarettes Filters	20219	28041	4	30241	2	32303	3
5	Foam Pieces	14513	12841	6	13050	6	15692	6
6	Straws/Stirrers	12073	19633	5	18372	5	18161	5
7	Plastic Beverages/Soda Bottles	8204	11775	7	11775	8	9974	8
8	Plastic Store/Shopping Bags	5564	10808	8	8037	10	8371	9
9	Lumber Pieces	5274	9426	9	9235	9	13784	7
10	Paper Pieces	4416	7114	11	5560	12	4617	*
11	Cigar Tips	3581	4846	*	6366	11	4842	12
12	Other Plastics	3215	4521	*	3836	*	4341	*
	Number of Volunteers	3990	6658		6926		7575	

**not in the Dirty Dozen for indicated year*

ROSTER OF THE RIDICULOUS

A selection of the oddest items collected

Home Improvement: top of a tool box, bucket of nails, 2 door frames, screwdriver

High Tech: computer monitor, iPod, computer circuit board, hard drive, selfie stick, Direct TV satellite cap, cell phone

Automotive: car door, 3 car bumpers, radiator hose, 2 car tires, car floor mat, ice scraper, pick-up truck bed cover, car battery, 2 bottles of motor oil, EZ Pass tag

Beauty & the Beach: tweezers, fake fingernail, nail polish brush, bar of soap, 24-inch hair extensions, 2 lipsticks

In the Money: \$10 bill, gold coins, rusted quarter, NJ Lottery Ticket

Getting Personal: full upper denture, plastic flosser, 3 toothbrushes, fake mustache, pregnancy test, 3 band aids, maxi pad, baby bottle nipple, diaper

Be a Sport: bike chain, 2 hula hoops, bike tire, 2 bikes, 2 skateboards, backpack, skateboard wheel, rollerblade wheel, super bouncy ball, 2 bike seats, tennis racket, horseshoe, 2 mouth guards, plastic slide to swing set, bike light, bike reflector

For the Holidays: 3 fake Christmas trees (2 decorated), plastic holiday wreath, 3 plastic flowers, plastic egg

Around the House: laundry basket, table leg, shower curtain, 3 mouse traps, sink drain with chain, vacuum cleaner attachment, tape dispenser, remote control, chopsticks, telephone book, roasting pan, toilet seat, pink lawn flamingo, pitchfork, sewing needle, broom, sink drain insert, microphone, pillow, vacuum hose, 2 light bulbs

What is Nonpoint Source Pollution?

Precipitation that falls and travels over surfaces, called stormwater, picks up and moves pollution as it flows into the nearest storm drain, which empties into a nearby waterway and, ultimately, into the ocean. This precipitation-pollution mix, or nonpoint source pollution, contains litter, fertilizers, pesticides, soil, oil and grease, bacteria, human and animal waste, and other pollutants. Nonpoint source pollution can be harmful, negatively affecting the beauty and health of waterways for both people and wildlife.

New Jersey has 20 watersheds—where do you live?

What is a watershed?

A **watershed** is an area of land that drains into a particular body of water. There are twenty watersheds in New Jersey, which ultimately all lead to the ocean (see map). The precipitation in a watershed drains into to waterbodies within that watershed. The stormwater also brings nonpoint source pollution. (see above section)

To find your watershed address, follow water as it flows from your street to the nearest creek, river, lake, bay, or to the ocean. For more information on your specific watershed, “Surf Your Watershed” at <http://cfpub.epa.gov/surf/locate/index.cfm>.



How Can I Be Watershed Mindful?

Watershed mindfulness is an understanding that we are all (the small and the tall) connected to and responsible for the health of our vast network of waterways that ultimately leads to the ocean. It is this awareness that binds us to the health of our ecosystem.

Citizens can be watershed mindful by knowing their water address, a new concept from COA where everyone knows specifically how water travels from their rooftops and streets to the ocean. Knowing the watershed and reducing sources of pollution to it are vital to quality of life. Importantly, people can help prevent pollution by stopping nonpoint sources, especially polluted runoff.

One way to avoid harmful impacts to waterways is to avoid the use of single-use plastics, which often end up as litter, such as straws. In just two years at the Beach Sweeps, volunteers picked up 31,706 straws. Let's work together to get this number lower by taking the pledge to skip the straw. COA is working with EPA's initiative, Trash Free Waters (TFW), to reduce marine debris. Members of COA staff are on the steering committee, and in the microplastics and straws groups. For information contact outreach@cleanoceanaction.org.

NEED SOME TIPS TO HELP STOP POLLUTION?

Clean Ocean Action's Tip Card series promotes reducing "people pollution."

Go to www.CleanOceanAction.org for tips about:

Anglers, Boaters, Cat Owners, Cleaning, Dog Owners, Drivers, Fertilizer, Kids, Kitchen, Lawn & Garden, Smokers, and more.

About the Beach Sweeps

In 1985, Clean Ocean Action gathered 75 volunteers at Sandy Hook for the first **Beach Sweeps**, with plans to rid the beaches of unsightly and harmful debris.

Thirty-one years later, the *Beach Sweeps* program has expanded into locations along NJ's coastline, as well as to inland rivers, lakes, bayshores, and streams. Each year, thousands of citizens participate, representing diverse groups and businesses. The program illustrates the power of citizen action.

The *Beach Sweeps* are held in the Spring and Fall, when the beaches are not being cleaned by local municipalities, resulting in a true snapshot of pollution. The goal is to have naturally clean beaches where "clean-up" events are no longer needed.



Perhaps one of the most unique aspects about the program is that every Beach Sweeper becomes a "citizen scientist" as they record each

piece of debris collected on our *Beach Sweeps* data cards. The data collection and related research help us: discover solutions to keep beaches clean and healthy; create federal, state, and local programs to reduce litter; and protect the public and the environment.



Lucy Kalian, a long-time COA supporter, turned trash into artful treasure. Lucy's artwork was on display at the Morris Museum.

Microplastics: The Very Small, Big Deal

Plastics are synthetic, persistent materials derived from petroleum (crude oil). In recent decades, single-use disposable plastic items have become pervasive, and epitomize a society of convenience that unfortunately has significant ecological costs, especially in aquatic environments. Although difficult to quantify, vast amounts of plastic enters the ocean each year from land-based sources and at-sea sources that is increasing the immeasurable volume of plastic waste already circulating in the global ocean.

According to recent research, plastics in the ocean have also been known to attract persistent, bio-accumulating and toxic substances, which include polychlorinated biphenyls (PCBs), dioxins, and petroleum based chemicals.

Plastics do not biodegrade; existing pieces break down into ever smaller pieces through photodegradation and mechanical abrasion. As such, once plastic is introduced into the environment, it will persist for hundreds of years. Plastics less than 5 millimeters (grain of rice) or smaller are called microplastics.

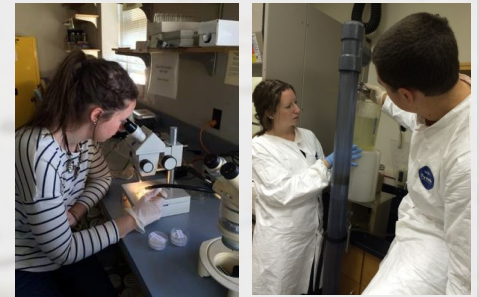
In 2014, Clean Ocean Action (COA) embarked on a statewide research study investigating microplastic concentrations along the NJ coast. Using our Beach Sweep locations as a model, staff worked with Beach Captains and students from the Marine Academy of Science and Technology (MAST) to survey the coast. To date, each sample has tested positive for microplastics. The predominant type of microplastics found is microfibers, which come from synthetic clothing via washing machine effluent, fishing nets, and cigarettes.

In March 2016, COA worked with the 5Gyres Institute, US Environmental Protection Agency's Trash Free Waters Program, and other experts to host the webinar, "Exploring Microfiber Pollution: Sources, Environmental Impacts, Potential Solutions and Next Steps." The webinar discussed how experts are addressing the impacts of plastic microfibers. To watch the webinar, please visit: <https://www.5gyres.org/education-programs/>.

How Can You Help?

The Trash Free Waters program offers these seven simple steps to help reduce microfiber pollution:

1. Front loading washing machines release fewer microfibers.
2. Buy clothing made with natural fibers, such as wool, cotton, and linen.
3. Wash fleece clothing & blankets in cold water, on gentle cycle.
4. Wait until you have a full load of laundry.
5. If clothing is worn once, hang it outside and wear it again.
6. Reuse towels; hang them up to dry completely.
7. Spot-clean stains as soon as possible.



COA's Catie Tobin, researching microplastics with a MAST student



Microplastics under a light-microscope
Credit: Dr Mark Browne, University College Dublin and Environmental Science and Technology

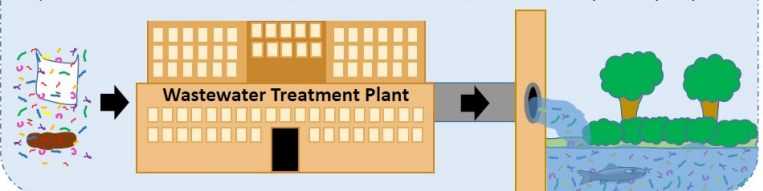
Your Laundry and Water Pollution: Protect Our Local Waterways & Wildlife

When we wash our laundry we affect the wildlife in our local waterways. Our health is directly connected to the health of our environment. We can take simple steps to protect local wildlife and the health of our waterways.

Many synthetic fabrics such as polyester and acrylic are made up of thin plastic fibers. When we wash items made from these materials tiny fibers called microfibers break off in the water and flow down the drain.



Many of these microfibers are not filtered out by our wastewater treatment plants so billions of microfibers are released into our waterways every day.



When these microfibers enter our waterways, chemical pollutants may collect on the fibers, amplifying their negative impact to our environment. These chemical-ridden microfibers can be eaten by small animals and passed up the food chain.





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Atlantic City Electric, Baine Contracting, Brookdale Community College and Student Life & Activities, Garden State Seafood Association, Jenkinson's Aquarium, SERVPro of Eatontown & Long Branch, Surfrider Foundation - Jersey Shore Chapter

SPECIAL THANKS

The following have contributed important resources:

Atlantic Bagel, Bloomberg LP, Booskerdoo Coffee, Gateway National Recreation Area Sandy Hook Unit, Island Beach State Park, Marine Academy of Science & Technology, Monmouth County Parks System, Middlesex County Parks System, NJ Clean Communities Council, Ocean Conservancy, and Rotary Club Interact #7540.

Clean Ocean Action is a coalition of 115 organizations dedicated to improve and protect the waters off the New Jersey and New York coasts. For information about Beach Sweeps and sponsorship opportunities, reducing pollution, and for past Annual Beach Sweep Reports, please contact:



18 Hartshorne Drive, Suite 2
Highlands, NJ 07732
CleanOceanAction.org
info@CleanOceanAction.org
(732) 872-0111



CORPORATE CORNER

CORPORATE IMPACT

Clean Ocean Action's Corporate Beach Sweep program invites corporate partners of all sizes to enjoy a day at the beach while fostering growth and teamwork among staff members. Through hands-on beach cleanups and team building activities, employees will see the impact that they are making to improve the marine environment, which ultimately affects public health, quality of life, and the economy. During cleanups, corporate teams split into groups, collect and remove debris, and record findings. In 2016, volunteers from 16 corporations removed a remarkable 22,267 pieces of debris from Sandy Hook.

COA staff leads the group and provides information about current ocean issues, harmful threats from marine debris, and the importance of clean water quality. Employees learn how to make a positive impact on the environment every day, regardless of where they live. An application is on our website under "Beach Sweeps."



CORPORATE RESPONSIBILITY: WASTE GETS A NEW LIFE

Founded in 1995, Bayshore Recycling has clientele in the construction, municipal, residential, commercial and environmental sectors. Their NJ facility has become the destination for recycling concrete, asphalt, brick, bulky waste and other diverse materials, which would otherwise be sent to the landfill. Their goal is to use the materials that are recycled to create renewable energy. Bayshore Recycling has been a long-time sponsor of the Beach Sweeps, providing resources and volunteers to clean New Jersey's beaches and environment.

Want to learn more about Bayshore's recycling program? Visit

BayshoreRecycling.com.

