

# Turning the Tide on Trash

2014 REPORT



International  
**Coastal  
Cleanup**<sup>®</sup>

Ocean   
Conservancy



## CONTENTS

- 1 A Message From the President and CEO
- 2 Taking Action to Tackle Trash
- 4 Coordinating Cleanups
- 6 Bringing Together Volunteers Worldwide
- 8 Tracking Trash on the Water
- 10 Engaging Our Partners
- 12 The Search for Scientific Solutions
- 14 Organizing Data
- 16 2013 Ocean Trash Index
- 22 2013 Cleanup Coordinators
- 24 Acknowledgments



Ocean Conservancy educates and empowers citizens to take action on behalf of the ocean. From the Arctic to the Gulf of Mexico to the halls of Congress, Ocean Conservancy brings people together to find solutions for our water planet. Informed by science, our work guides policy and engages people in protecting the ocean and its wildlife for future generations.



In partnership with volunteer organizations and individuals around the globe, Ocean Conservancy's International Coastal Cleanup engages people to remove trash from the world's beaches and waterways, identify the sources of debris and change the behaviors that cause marine debris in the first place.

[www.oceanconservancy.org](http://www.oceanconservancy.org)

# Turning the Tide





## A MESSAGE FROM THE PRESIDENT AND CEO

# Shaping Solutions for Trash Free Seas

My first International Coastal Cleanup experience as CEO of Ocean Conservancy this past September was both inspiring and sad. Sad because, with gloves and a bucket, I found our stretch of coast thoroughly inundated by waste of all kinds. Inspiring because of the many volunteers surrounding me who were committed to keeping the ocean clean and healthy.

Ocean trash truly is a global problem that affects human health and safety, endangers marine wildlife and costs states and nations countless millions in wasted resources and lost revenue. At its core, however, ocean trash is not an ocean problem; it is a people problem – perpetuated by the often unwitting practices that industry and people have adopted over time. But I am convinced we can solve it if we have the audacity to confront the problem head-on.

For the past 28 years, Ocean Conservancy has inspired millions of volunteers, as well as industry players, the world over to take action by removing and recording trash during our International Coastal Cleanup. We are proud to report that last fall nearly 650,000 volunteers in 92 countries and locations joined the effort by gathering more than 12.3 million pounds from our beaches and waterways.

I am deeply proud of this volunteer effort. But our work has just begun. We need to learn how waste – particularly plastics – ends up in the ocean, how it hurts people and animals, and how we can devise global solutions to this growing problem.

We're on it. We are working with an international group of scientists to figure out answers to the big questions of "Where does it come from?" and "What harm does it do?" Preliminary results, I can tell you, are deeply concerning and include the sheer amount of plastic that is entering the ocean every year. Stay tuned for results later this year.

In addition, two of our own marine scientists joined expeditions in Alaska and Maine to survey ocean trash. And we are working with a group of waste management specialists to understand the most promising strategies for meaningful and global reduction of trash – and the role that we, as ocean advocates, must play.

Last fall, we also hosted our third meeting of the Trash Free Seas Alliance<sup>®</sup>, an Ocean Conservancy-led forum uniting leaders from industry, academia and the conservation community around the common goal of tackling marine debris. As we further our work with the Alliance in the coming year, we are optimistic that a combination of scientific research and industry commitment can spur lasting systemic solutions.

I invite you to read this report to see further how our collective efforts are leading to progress on the pervasive problem of marine debris. Many challenges still remain, but I am convinced the tide has begun to turn on trash. All of us at Ocean Conservancy remain confident that with the support of our partners and members, we will eliminate ocean trash once and for all. We hope you will join us on this quest.

Kind regards,



Andreas Merkl  
President and CEO  
Ocean Conservancy



USA

# Taking Action to Tackle Trash

Trash has infiltrated all reaches of our ocean, causing innumerable adverse impacts on ocean life and coastal communities. The problem can seem overwhelming, but it is entirely preventable. That's why Ocean Conservancy is engaging its network of partners and volunteers to stop the flow of trash at the source before it has a chance to reach the water and threaten wildlife, or soil our beaches and depress local economies.

During the past quarter century, volunteers have assembled through the International Coastal Cleanup to improve the condition of beaches and waterways and raise awareness about the trash problem. Now, ocean advocates worldwide are developing practical approaches that strengthen the science, promote sound policies and empower

people to engage in action for trash free seas.

In 2013, scientists and industry players from the Trash Free Seas Alliance® came together in search of collaborative solutions. International experts at the National Center for Ecological Analysis and Synthesis continued to assess the scale and scope of the marine debris problem. Volunteers from the Wrightsville Beach Sea Turtle Project also embarked on a pilot project to protect sea turtles by examining their interactions with ocean trash.

By taking a holistic approach to tackling trash, instead of relying entirely on cleanups, together we can move one step closer to lasting solutions.

## Protecting Sea Turtles From Ocean Trash

Sea turtles, one of the oldest creatures on Earth, are severely imperiled. No marine animal is more susceptible to the range of threats posed by plastics and other trash. They often ingest plastic bags by mistaking them for jellyfish or become entangled in nets, line and other debris. Young hatchlings face incredibly low survival odds. From eggs laid in nests where beachgoers

are apt to tread, hatchlings mount a long and arduous migration to the water to survive. The faster they reach the water, the more likely they are to live, but physical objects like trash prolong migration. Debris diverts hatchlings from the shortest route, which can result in hatchlings following a path parallel to the ocean that leads to death.

In 2013, Ocean Conservancy partnered with the Wrightsville Beach Sea Turtle Project and Wrightsville Beach—Keep It Clean in North

Carolina to launch a pilot project aimed at better understanding,

and protecting sea turtles from the dangers of marine debris that litters nesting beaches.

Using a modified version of the International Coastal Cleanup's debris-monitoring protocol, volunteers removed trash from sea turtle nesting beaches in conjunction with their existing sea turtle monitoring efforts and recorded the findings on the data form. Then, Ocean Conservancy scientists analyzed the information and are using it to refine sampling protocols and expand the scope and scale of the monitoring effort in 2014.



## 2013 TRASH FREE SEAS® TIMELINE

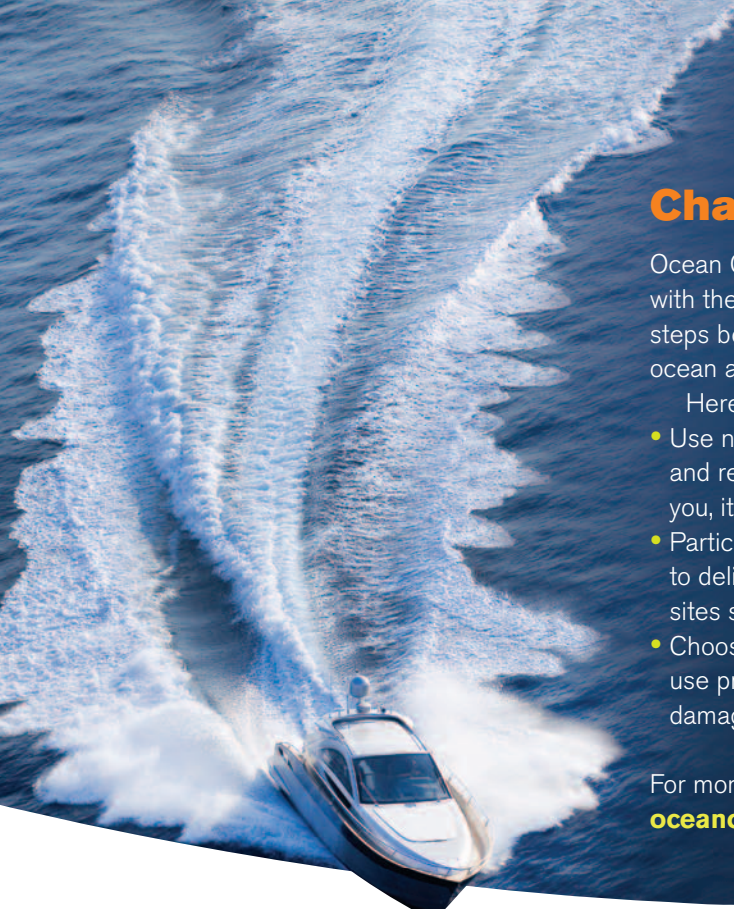
### FEBRUARY

New data form is released (*see page 14*)

### MAY

Results from 2012 International Coastal Cleanup released

Ocean Conservancy partners with Wrightsville Beach Sea Turtle Project and Wrightsville Beach—Keep It Clean to begin pilot project on protecting sea turtles from ocean trash (*see page 2*)



# Good Mate: Charting a Clean Course for Boaters

Ocean Conservancy's Good Mate program, created in collaboration with the Brunswick Public Foundation, promotes the best practical steps boaters and marinas can take to preserve the health of the ocean and waterways.

Here are a few Good Mate tips for green boating:

- Use nonhazardous materials when maintaining and repairing your boat. If it's hazardous to you, it's hazardous to the environment.
- Participate in oil recycling programs to deliver oil to designated collection sites such as service stations.
- Choose anchor sites carefully, and use proper techniques to avoid damaging sensitive habitats.

For more Good Mate tips, visit [oceanconservancy.org/goodmate](http://oceanconservancy.org/goodmate)

**In 2013,**  
**4,589** boaters traveled  
**399** miles of waterways and collected  
**108,981** pounds of trash.

Ocean Conservancy's Conservation Biologist and Marine Debris Specialist Nicholas Mallos and Program Coordinator Allison Schutes, along with Ginger Taylor of the Wrightsville Beach Sea Turtle Project, presented findings from this pilot at the 34th Annual Symposium on Sea Turtle Biology and Conservation in New Orleans this spring.

During the four-month pilot, about 700 hatchlings were born from nine nests in six nesting zones. There were also six "false crawls" – instances when sea turtle mothers move slowly up a beach but return to the water

without laying eggs.

Volunteers removed approximately 7,200 pieces of trash from the same zones. The abundance of children's toys – which accounted for 7 percent of all items found – is particularly worrying, because debris items of similar size and durability have been proven to significantly alter hatchlings' treks to the water.

As the project grows, amassed data will provide an enhanced understanding of the ways trash impacts nesting sea turtles and hatchlings. These findings also help increase awareness among beachgoers of the threats marine

debris, especially plastics, poses to sea turtles. This project is allowing us to think about new ways to augment sea turtle protection and mitigate harmful conditions for turtle populations in municipalities and communities where collaborative monitoring takes place.

Ocean Conservancy is expanding this project in 2014, working with partners down the Atlantic seaboard, on both coasts of Florida, and around the Gulf of Mexico. In addition, potential partners from as far away as Central America, Kenya and Malaysia have indicated interest in collaborating on similar efforts.

JUNE	AUGUST	SEPTEMBER-OCTOBER	NOVEMBER
Conservation Biologist and Marine Debris Specialist Nicholas Mallos travels to Alaska to survey plastics with research team from Expedition GYRE ( <i>see page 8</i> )	Trash Free Seas Coordinator Allison Schutes joins Rozalia Project on a research expedition to evaluate marine debris in the Gulf of Maine ( <i>see page 9</i> )	Ocean Conservancy's 28th International Coastal Cleanup events held worldwide	Scientific Working Group on Marine Debris meets at the National Center for Ecological Analysis and Synthesis to finalize its evaluation of the state of marine debris science



# Coordinating Cleanups

Ocean Conservancy's International Coastal Cleanup began in 1986 with a handful of volunteers collecting trash along the Texas coast. Twenty-eight years later, it has grown into the largest global volunteer effort on behalf of the ocean. Nearly 650,000 people participated in the 2013 Cleanup, with events held in 44 states and in more than 90 countries and locations around the globe. As the event has grown in popularity, several locations have begun hosting events year-round.

Local, state and international Coordinators are the backbone of the Cleanup and have been instrumental in its growth and organization. Year after year, the success of the Cleanup depends on their generous contributions of time and resources – as well as those of their organizations – in this global effort.

Today, there are more than 140 Coordinators worldwide.

“The Coordinators are a testament to the difference people can make when they make a commitment to ocean health,” said Sonya Besteiro, associate director of the International Coastal Cleanup. “Their continued dedication to the Cleanup is responsible for the event’s growth and the elevated awareness around ocean trash and its impacts.”

Coordinators are responsible for identifying Cleanup sites, mobilizing volunteers, organizing site logistics and materials, and engaging journalists.

And after all the trash has been collected, Coordinators ensure that it has been tallied on Ocean Conservancy’s data form so that the data are ready to be analyzed by our team of scientists and marine debris experts.

## Peru Coordinator Uses Data to Advocate for Solutions

Arturo Alfaro founded VIDA Institute for Environmental Protection to encourage citizens to safeguard Peru’s natural resources. Since 1999, as the country’s Coordinator for the International Coastal Cleanup, he has used the Cleanup’s data to influence businesses and policymakers to address ocean trash.

For example, Alfaro noticed that while volunteers were finding fewer plastic bottles over time along the coastline, the large amount of bottles found at inland Cleanups had not changed. He observed a correlation between the number of discarded bottles and the presence of recycling centers that paid consumers for them. Near the ocean, easy access to recycling centers encourages consumers to cash in their bottles. But the lack of recycling centers inland creates no financial incentive to recycle, leading to more scattered bottles along



lakeshores. VIDA is now working with businesses and local governments to increase the presence of recycling centers around inland waterways.

“The data helped pinpoint the problem and allowed us to take an informed approach,” says Alfaro.

Similarly, when 6 tons of mysterious construction waste was recorded along a small beach, VIDA determined that

debris had traveled via ocean currents from a coastal dump site. VIDA then helped move several construction dump sites farther inland to prevent trash from washing out to sea.

“It is difficult to craft solutions until we know what’s polluting our beaches and waterways,” says Alfaro. “And the International Coastal Cleanup helps us do just that.”



USA



## Florida Boy Shows Anyone Can Make a Difference

Ryan, a 7-year-old boy who lives near St. Petersburg, Fla., shows how anyone, regardless of age, can work toward a trash free ocean. Along with his parents, he organizes cleanups every few months.

"It makes me so sad that animals are hurt by pollution," Ryan said of his motivation.

In 2013, he wrote and illustrated *Puffy the Pufferfish Saves the Ocean*, a fictional account of his favorite animal's attempt to rescue other marine life from ocean trash. He also started The Fishes Wishes, a company that sells ocean-themed ornaments and magnets, to raise money for ocean conservation.

Ryan constantly encourages others to do their part by picking up trash on the beach. He reminds his audiences to recycle and reduce the products they use.

"Everyone is the solution to pollution," he says.

## Cleanup Elevates Trash Problem in Great Lakes

For more than 40 years, the Alliance for the Great Lakes has worked to restore the world's largest surface freshwater resource. Since 1991, the Alliance has also served as the International Coastal Cleanup Coordinator for Illinois and Michigan, and later as the Coordinator for Indiana, Minnesota and Wisconsin as well.

"The Cleanup has been an effective way to connect and engage people in caring for this special freshwater resource," said Jamie Cross, program manager.

After volunteers expressed over-

whelming interest, the Alliance expanded its efforts and began holding year-round cleanups in all eight Great Lakes states in 2003. Cross also credits the Cleanup with helping the Alliance establish a partnership with the National Oceanic and Atmospheric Administration to host strategy sessions for the development of the first ever Great Lakes Marine Debris Action Plan.

"Ocean Conservancy has helped us tremendously in elevating the trash issue," she said. "We went from being a lone voice to being part of a global voice."

## WEIRD FINDS

### Enough items to furnish an entire studio apartment,

including an air conditioner, sink, refrigerator, dishwasher, oven, microwave, washing machine, couch, table and chairs, television set, coffee table, rug, curtains, toilet, dresser, desk and a bed complete with mattress, pillows and pillow cases.

### All the items necessary for caring for a baby,

including baby blankets, clothes, shoes, bottles, pacifiers, a rattle, a stroller, a crib, a baby gate, a high chair and a baby monitor.

### Most of the items needed for a wedding,

including a wedding dress, wedding ring, veil, top hat, bowties, wine glasses and flowers.

## OTHER ITEMS FOUND

- 1904 typewriter
- Blond wig
- Correctional officer's uniform
- GPS unit
- Guitar
- Half-marathon medal
- Lava lamp
- Letter in a bottle
- Loaded handgun
- Math textbook
- Pink tu tu
- Plastic eye ball
- Prison bracelet
- Rosary beads
- Stethoscope
- Torn up love letter
- Trampoline
- Treasure map in a bottle
- Voodoo doll in a jar
- Working iPad



CANADA

4

1

UNITED STATES

9

MEXICO

8

DOMINICAN REPUBLIC

7

VENEZUELA

ECUADOR

6

5

PERU

# Bringing Together Volunteers Worldwide

Nearly 650,000 volunteers in 92 countries and locations in over 5,500 sites participated in Ocean Conservancy's 2013 International Coastal Cleanup®, the largest global volunteer effort to remove trash from beaches and marine and freshwater environments.

## Participating U.S. States

Alabama  
Alaska  
Arizona  
Arkansas  
California  
Colorado  
Connecticut  
Delaware

Florida  
Georgia  
Hawaii  
Idaho  
Illinois  
Indiana  
Kansas  
Kentucky

Louisiana  
Maine  
Maryland  
Massachusetts  
Michigan  
Minnesota  
Mississippi  
Missouri

Nebraska  
Nevada  
New Hampshire  
New Jersey  
New Mexico  
New York  
North Carolina  
Ohio

Oregon  
Pennsylvania  
Rhode Island  
South Carolina  
South Dakota  
Tennessee  
Texas  
Utah

Vermont  
Virginia  
Washington  
Wisconsin



## 2013 TOP 10 PARTICIPATING COUNTRIES AND LOCATIONS

INDIA 10

3

HONG KONG

2

PHILIPPINES

### Participating Countries and Locations

Argentina	China	Grenada	Mozambique	Puerto Rico	Sri Lanka
Australia	Colombia	Guam	Namibia	Qatar	Sweden
Azerbaijan	Costa Rica	Honduras	Netherlands	Republic of Korea	Switzerland
Bahamas	Croatia	Hong Kong	New Zealand	Saba	Taiwan
Bangladesh	Curaçao	India	Nicaragua	Saint Kitts and Nevis	Thailand
Barbados	Dominica	Indonesia	Nigeria	Saint Lucia	Trinidad and Tobago
Belize	Dominican Republic	Ireland	Northern Ireland	Saint Vincent and the Grenadines	Turkey
Bermuda	Ecuador	Italy	Northern Mariana Islands	Saudi Arabia	U.S. Virgin Islands
Bonaire	Egypt	Jamaica	Norway	Scotland	Ukraine
Brazil	El Salvador	Japan	Oman	Singapore	United Arab Emirates
British Virgin Islands	England	Kenya	Panama	Sint Maarten, Dutch West Indies	United States
Brunei	French Polynesia	Kuwait	Paraguay	Slovenia	Uruguay
Cambodia	Germany	Malaysia	Peru	South Africa	Vanuatu
Canada	Ghana	Maldives	Philippines	Spain	Venezuela
Channel Islands	Gibraltar	Malta	Portugal		Wales
Chile	Greece	Mexico			

# Tracking Trash

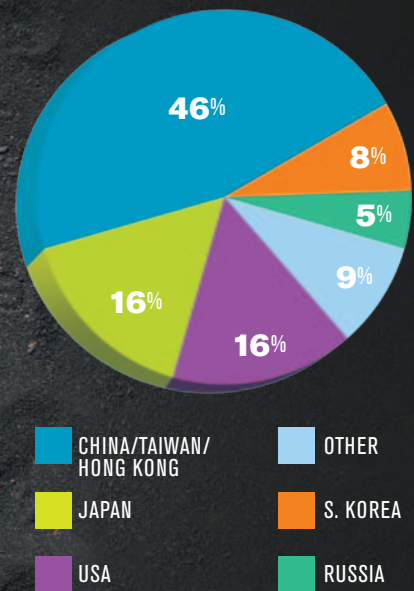
## on the Water

Ocean Conservancy's Trash Free Seas® scientists and program experts travel far and wide to study the problems caused by marine debris and seek solutions. In 2013, two staff members journeyed to opposite coastlines to join sailing expeditions and get up close with marine debris – and

plastics, in particular. Nicholas Mallos, conservation biologist and marine debris specialist, participated in a research expedition with Expedition GYRE in Alaska. Allison Schutes, Trash Free Seas coordinator, joined the Rozalia Project crew in Maine.



**COUNTRIES OF ORIGIN FOR PLASTIC BOTTLE CAPS COLLECTED DURING EXPEDITION GYRE.**



TOTAL NUMBER OF CAPS REPRESENTED IS 547

### Alaska Adventure Highlights State's Marine Debris Problem

Last summer, Ocean Conservancy's Nicholas Mallos joined a team of educators, artists and filmmakers – collectively known as Expedition GYRE – on a voyage that examined the most persistent types of debris plaguing the Alaskan wilderness. As a state with a 45,000-mile coastline filled with myriad coves and pocket beaches that capture large quantities of trash, Alaska has one of the biggest marine debris problems in the United States.

The team, which sought to bring attention to the problem through art and science, discovered hundreds of plastic beverage bottle caps and bottles. They also discovered other debris that likely originated from the 2011 Great East Japan Earthquake and Tsunami. This winter, the Anchorage Museum opened an exhibit – with Mallos as a keynote speaker – on Expedition GYRE's findings.

During the journey, Mallos also witnessed some of the state's magnificent landscapes and wildlife, such as humpback whales and brown



bears, in their natural habitats.

"These beautiful landscapes have been blemished by marine debris, but they have not been ruined," says Mallos. "The protection of incredible wildlife is all the more reason we must keep working to keep trash out of the ocean and waterways."





## Maine Voyage Shows How Trash Travels

In August, Ocean Conservancy's Allison Schutes teamed up with a crew in Maine as a guest scientist of the Rozalia Project, an organization dedicated to finding and removing marine debris. Sailing aboard *American Promise*, the team collected more than 7,500 pieces of trash during the weeklong, 200-mile trip.

Despite traveling to remote islands and uninhabited areas, the crew found many of the same items – such as bottles, food wrappers, and foam cups and plates – that top the list of items

gathered during the International Coastal Cleanup each fall.

"This is not too surprising because we know that trash travels," says Schutes.

The team also collected large amounts of fishing gear, which reflects one of the region's most important industries and a source of its marine debris problem.

"If we really want to combat this problem," Schutes adds, "we all have to play our parts, whether on water or on land."

## Rozalia Project Addresses Trash From "Surface to Seafloor"

Diving, trash-eating robots? Garbage-hunting ships? Cool underwater cameras? Sign us up!

The person to see is Rachael Z. Miller. She co-founded the Rozalia Project in 2010 with the vision of addressing ocean pollution through innovation and education. Since 2012, Miller has also served as Vermont's Coordinator for the International Coastal Cleanup.

"We believe in attacking marine debris from the surface to the seafloor," says Miller. "We need to do everything we can not just to remedy the problem, but also to understand it better."

In addition to collaborating with scientists, including several from Ocean Conservancy, the organization conducts its own studies and data collection. Its Urban Waters Floating Trash study, for example, examines trash accumulation zones in ten major North American cities to make cleanup and prevention more viable and effective.

Miller has deployed *American Promise*, the Rozalia Project's mother ship for on-water trash removal, to host scientists, professors and students on scientific research missions around New England.

It is equipped with two collection robots capable of diving up to 1,000 feet below the surface, along with other garbage-hunting technology. "This is our ship of opportunity, giving people up-close access to the issue," Miller explains.

Using its robot, Hector the Collector, as its centerpiece, the organization holds education programs year-round

with schools, museums, waterfront facilities and town halls to build support around the issue from all stakeholders.

"It's important to maintain optimism about marine debris, and we are proud to join Ocean Conservancy in this effort," says Miller. "Everyone has a stake in a clean and healthy ocean."



# Engaging Our Partners

Ocean Conservancy is honored to partner with companies, government agencies and organizations whose generosity has helped make the International Coastal Cleanup a success. In addition to their financial support and spirit of volunteerism, these partners provide expertise that helps advance Trash Free Seas® objectives.



## Hollomon Price Support Grows

The Hollomon Price Foundation has supported Ocean Conservancy's conservation agenda, including the International Coastal Cleanup and efforts to protect wildlife, for nearly a decade. And our partnership is growing.

Wayne Hollomon Price, who created the foundation, passed away in May 2011, but her spirit of giving and connecting lives on. "Everybody on the board has a deep, personal connection to Wayne, so we try to fulfill her mission to serve and to help our world be a better place," says John Bellett, executive director. "Ocean Conservancy is a crucial partner in that mission."

## Bank of America Shows Ocean Commitment

As a committed partner in ocean health, Bank of America has proudly supported and participated in the International Coastal Cleanup since 2000.

"The event's results are quantifiable and measurable and highlight the impact that each one of us can have," says Alex Liftman, global environmental executive at Bank of America.

During the 2013 event, 529 employees removed more than 5,000 pounds of trash from the ocean and waterways. Flagship Cleanups with Bank of America were organized domestically in Connecticut, Delaware, and Long Island, N.Y. International

events were held in Hong Kong, Sao Paulo, Singapore, and Guadalajara, Mexico.

In 2012, the company was quick to respond when Ocean Conservancy organized cleanups in California, Oregon and Washington as debris from the 2011 Great East Japan Earthquake and Tsunami made its way onto U.S. shores.

From supporting employee engagement to responding to emergency needs, Bank of America is committed to promoting ocean sustainability worldwide. "Regardless of where you live, your well-being depends on a healthy ocean," Liftman says.





# 2013 INTERNATIONAL COASTAL CLEANUP SPONSORING PARTNERS

## The Coca-Cola Company

## Bank of America

## National Oceanic and Atmospheric Administration

## Altria Group, Inc.

## The Dow Chemical Company

## Landshark Lager

## Hollomon Price Foundation

## Glad

## Brunswick Public Foundation

## Johnson & Johnson Family of Consumer Companies

## Booz Allen Hamilton

## ITW

## Teva

## Owens-Illinois, Inc.

## The Walt Disney Company

## U.S. Environmental Protection Agency

## OUTREACH PARTNERS

- Earth Day Network
- Keep America Beautiful
- Project AWARE
- United Nations Environment Programme

The foundation has deepened its support for the Trash Free Seas Alliance® and is helping fund work to advance scientific knowledge about the sources and fates of ocean trash and to develop new mitigation strategies.

Trustee Nancy Zatarain believes the ocean is an important, though often overlooked, aspect of the environmental puzzle. "We look to Ocean Conservancy for advice on the best ways the foundation can address vexing ocean challenges like marine debris."

### Cox Joins as Newest Partner

Ocean Conservancy is proud to welcome Cox Enterprises, a leading communications, media and automotive services company, as our newest partner for 2014. Cox came to Ocean Conservancy looking for an ocean partner to round out its sustainability platform known as Cox Conserves. We look forward to working with Cox employees to help keep our ocean clean and healthy.

PERU



# The Search for Scientific Solutions

Achieving durable solutions for trash free seas can be accomplished only if we work to advance the science on marine debris and figure out ways to stop trash at the source. This search for “upstream” solutions is one reason Ocean Conservancy shares its data collected during the International Coastal Cleanup with scientists and decision-makers.

In 2013, Ocean Conservancy expanded its scientific influence by working to conclude the analysis of the independent Scientific Working Group on Marine Debris at the National Center for Ecological Analysis and Synthesis (NCEAS). Established by Ocean Conservancy in 2011, this group of international experts has been collaborating to provide new insights into the scale, scope and impacts of

marine plastics. The final NCEAS results – a dozen papers to be published in the peer-reviewed scientific literature – are expected to be released later this year. They will be used to guide future work and inform recommendations to policymakers and industry.

Ocean Conservancy also hosted the third meeting of the Trash Free Seas Alliance®, a collaborative effort among industry, academic and conservation leaders who share the common goal of a healthy ocean free of trash. We will further our work with the Alliance in the coming years, knowing that science – combined with industry commitment – can lead the way to lasting solutions.



Trash Free Seas Alliance® meeting in Sausalito, California

## Trash Free Seas Alliance® Proposes Solutions

Last fall, members of the Trash Free Seas Alliance gathered in Sausalito, Calif., to chart a course for possible interventions aimed at tackling debris at the source. During the meeting, scientists, industry and conservation leaders discussed the implications of the latest insights from the scientific community.

Bolstered by these findings, and under Ocean Conservancy's direction, the Alliance identified three project proposals designed to get to the bottom of how trash enters the marine environment. By evaluating specific products like beverage bottle caps and specific geographic locations

with demonstrated trash problems, the Alliance is poised to advance new knowledge and concrete action to stem the tide of ocean pollution.

While these projects are still in the development phase, we look forward to reporting more about their progress in future reports.



## NCEAS Scientists Shed Light on Plastic Pollution

Growing up, neither Dr. Chelsea Rochman nor Dr. Kara Lavender Law thought they would pursue careers in marine science. Rochman took a stab at acting. Law displayed more of an aptitude toward math. But once they took marine biology and oceanography courses in college, they never looked back.

“The study of plastic debris continues to fascinate me,” says Rochman. “Its presence in the ocean is a big concern for me.”

Today, both are lead scientists of the Ocean Conservancy-facilitated Scientific Working Group on Marine Debris at the National Center for Ecological Analysis and Synthesis (NCEAS) at the University of California, Santa Barbara. They’re striving to better understand the impact of marine debris on ocean health.



Dr. Kara Lavender Law (left) and Dr. Chelsea Rochman (right)

Rochman is a postdoctoral scholar at the University of California, Davis. Her work focuses on the chemical composition of plastics as they enter the water, as well as the adverse effects they have on fish health. Using her findings, she’s working with the U.S. Environmental Protection Agency to develop stronger regulations on waste-dumping. She also hopes her research will lead to the manufacture of less-hazardous products.

Law is the principal investigator of the NCEAS Working Group and a

research professor at Sea Education Association who studies how ocean currents create “garbage patches” of floating plastic. She believes that better insights into the accumulation of this debris will help address larger resource management issues – such as how to better handle waste on land – that are critical to the ocean’s sustainability.

“Once we have answers to these fundamental questions, it becomes easier to create efficient mitigation strategies,” Law said.

## 6 DEGREES OF SEPARATION

### How does trash travel?



# Organizing Data

Using Ocean Conservancy's data form, International Coastal Cleanup volunteers are empowered to record the trash they collect along with the material composition of the items. The resulting Ocean Trash Index provides an invaluable location-by-location and item-by-item snapshot of what is polluting our beaches and waterways.

Ocean Conservancy uses the data for its education and outreach efforts, as well as to identify debris hot spots and inform policy solutions to the marine debris problem.

## Ocean Conservancy Unveils New Data Form

Is that a plastic bottle cap or a metal one? The difference is important.

A new data form released by Ocean Conservancy in 2013 helps volunteers record not just what objects they find but also their material composition.

Going forward, this new information will be instrumental in helping determine the effects that specific materials are having on ocean habitats. By understanding the items collected in greater detail, scientists and ocean advocates will be able to identify the best remedies and advocate for solutions that will lead to a healthier ocean.

"The ability to pinpoint the types and amounts of material on beaches and in the ocean – not just the kinds of products – makes the data more informative when supporting marine debris policy," said Nicholas Mallos, Ocean Conservancy's conservation biologist and marine debris specialist.

## TOP 10 ITEMS COLLECTED



1

**Cigarette Butts**  
**2,043,470**



6

**Grocery Bags (Plastic)**  
**441,493**



2

**Food Wrappers (Candy, chips, etc.)**  
**1,685,422**



7

**Beverage Bottles (Glass)**  
**394,796**



3

**Beverage Bottles (Plastic)**  
**940,170**



8

**Other Plastic Bags**  
**389,088**



4

**Bottle Caps (Plastic)**  
**847,972**



9

**Paper Bags**  
**368,746**



5

**Straws, Stirrers**  
**555,007**



10

**Beverage Cans**  
**339,170**



**VOLUNTEERS**  
**648,015**

**POUNDS OF TRASH**  
**12,329,332**



**MILES**  
**12,914**



## BY THE NUMBERS

**TOTAL GLOBAL TRASH VOLUME**  
Enough trash to fill the  
**U.S. Capitol Rotunda**  
**2.5 times**



**2.5**  
**TIMES**



**TOTAL GLOBAL TRASH WEIGHT**

Equivalent to the weight of  
**823 male African elephants**

**TOTAL GLOBAL ITEMS**  
More than enough  
**fireworks** for the entire United States to celebrate  
**Independence Day**

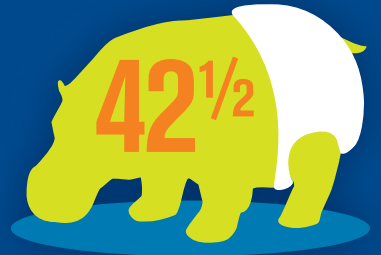


**TOTAL GLOBAL ITEMS**  
Enough fishing line to go up and over  
**Mount Everest**  
**5 times**



**5**  
**TIMES**

## BY LOCATION



**PHILIPPINES**

The weight of **diapers** found is equivalent to that of **42 and 1/2 hippos**.



**UNITED STATES**

Enough **forks, spoons** and **knives** to host dinner for every student at UCLA

**JAMAICA**

Enough **disposable cigarette lighters** were found to light **8,397,500 campfires**.








## TINY TRASH MATTERS TOO

Tiny Trash (less than 2.5cm)

- 1 Plastic Pieces: **1,034,667**
- 2 Foam Pieces: **852,525**
- 3 Glass Pieces: **394,787**











**TOTAL TINY ITEMS COLLECTED: 2,281,979**

## People/Pounds/Miles






COUNTRY					
	PEOPLE	POUNDS	MILES	TOTAL ITEMS COLLECTED	TOTAL ITEMS PER PERSON
ARGENTINA	302	8,018	1.8	6,849	22.7
AUSTRALIA	54	242	0.1	470	8.7
AZERBAIJAN	356	6,600	0.8	–	–
BAHAMAS	689	4,366	27.0	16,739	24.3
BANGLADESH	1,452	2,311	159.7	53,662	37.0
BARBADOS	177	681	0.6	4,245	24.0
BELIZE	1,607	9,279	27.3	66,451	41.4
BERMUDA	454	7,961	12.0	35,602	78.4
BONAIRE	113	1,261	0.1	2,866	25.4
BRAZIL	5,441	70,036	86.2	75,555	13.9
BRITISH VIRGIN ISLANDS	196	2,674	8.0	9,230	47.1
BRUNEI	1,410	3,106	3.6	17,571	12.5
CAMBODIA	315	604	3.9	5,525	17.5
CANADA	29,509	199,557	1,514.3	960,689	32.6
CHANNEL ISLANDS	284	203	69.7	11,886	41.9
CHILE	7,396	144,091	54.4	270,981	36.6
CHINA	4,590	9,824	22.1	42,420	9.2
COLOMBIA	3,114	70,596	5.0	–	–
COSTA RICA	820	20,461	17.2	115,115	140.4
CROATIA	59	306	0.1	4,696	79.6
CURAÇAO	12	11	0.1	139	11.6
DOMINICA	200	1,500	6.0	–	–
DOMINICAN REPUBLIC	13,505	146,318	46.1	423,396	31.4
ECUADOR	15,934	113,328	176.2	505,197	31.7
EGYPT	72	368	0.1	458	6.4
EL SALVADOR	9	200	0.1	253	28.1
ENGLAND	2,635	11,945	413.3	107,752	40.9
FRENCH POLYNESIA	10	200	0.1	149	14.9
GERMANY	321	1,344	3.6	24,169	75.3
GHANA	93	15,926	0.7	27,421	294.8
GIBRALTAR	18	1,763	0.1	802	44.6
GREECE	2,453	15,521	34.5	175,656	71.6
GRENADA	41	571	0.4	1,115	27.2
GUAM	609	1,573	2.0	7,993	13.1
HONDURAS	10	75	0.1	2,192	219.2
HONG KONG	42,579	3,649,958	175.0	322,590	7.6
INDIA	11,700	233,648	174.5	300,899	25.7
INDONESIA	360	1,447	0.9	12,761	35.4
IRELAND	402	7,558	29.0	5,511	13.7
ITALY	51	352	0.2	117	2.3
JAMAICA	6,437	64,111	59.4	421,399	65.5
JAPAN	4,846	65,315	14.9	100,645	20.8
KENYA	238	5,705	6.2	30,309	127.3
KUWAIT	8	44	0.1	93	11.6
MALAYSIA	1,463	8,142	4.0	27,005	18.5
MALDIVES	35	106	0.3	665	19.0
MALTA	27	1,475	0.1	280	10.4



# Top 10 Items Collected











 1	 2	 3	 4	 5	 6	 7	 8	 9	 10
CIGARETTE BUTTS	FOOD WRAPPERS (CANDY, CHIPS)	BEVERAGE BOTTLES (PLASTIC)	BOTTLE CAPS (PLASTIC)	STRAWS, STIRRERS	GROCERY BAGS (PLASTIC)	BEVERAGE BOTTLES (GLASS)	OTHER PLASTIC BAGS	PAPER BAGS	BEVERAGE CANS
1,716	373	675	1,220	115	357	131	104	162	70
6	66	19	24	12	20	111	8	-	20
-	-	-	-	-	-	-	-	-	-
341	706	1,498	1,327	681	267	1,309	536	240	675
17,812	18,415	662	1,044	3,360	535	259	291	506	582
-	278	698	575	23	193	81	174	6	5
1,785	5,530	7,260	5,988	2,405	2,493	2,485	4,693	1,051	1,511
4,329	832	1,472	2,975	305	237	4,230	552	167	631
788	36	17	36	31	-	83	4	3	68
10,930	3,796	6,524	5,907	6,258	6,008	2,147	1,608	447	1,929
304	338	1,512	321	377	248	1,076	172	110	1,150
3,561	1,399	2,812	1,370	621	700	282	670	323	341
-	1,095	441	671	1,107	605	31	20	-	133
311,052	82,179	33,743	32,841.00	23,586	18,268	14,401	22,297	9,936	26,723
392	1,330	177.0	1,081.00	-	148	29.00	125	4	110
37,280	14,845	7,587	9,319	2,691	6,683	5,127	5,712	2,425	5,099
9,036	1,535	2,471	583	348	1,259	687	5,913	2,689	1,322
-	-	-	-	-	-	-	-	-	-
462	646	69,404	17,546	10,800	112	4,984	214	19	3,505
2,478	156	34	139	-	133	55	119	58	36
-	-	5	-	-	2	7	-	-	3
-	-	-	-	-	-	-	-	-	-
6,727	13,097	42,338	79,457	4,852	35,825	30,446	29,728	9,019	472
43,114	31,757	23,741	23,583	21,325	16,457	16,460	13,273	8,392	5,382
1	3	64	29	1	24	53	10	-	9
10	9	47	41	14	5	18	4	-	11
5,972	7,030	4,396	5,236	-	1,632	846	1,310	426	3,405
-	-	50	-	-	-	33	-	-	37
16,914	616	57	704	105	62	223	104	641	48
54	1,078	1,941	1,162	1,412	7,491	26	6,740	870	812
-	25	107	14	-	20	156	22	-	190
64,473	3,479	6,373	8,398	7,364	2,083	1,535	1,845	1,285	3,652
68	178	82	75	42	73	31	38	20	58
881	120	1,250	-	-	684	1,206	-	-	2,543
-	800	55	10	15	7	-	5	-	29
11,781	19,223	14,695	17,021	14,642	9,852	4,207	13,211	1,820	3,043
20,061	28,553	22,241	18,960	14,335	15,536	14,897	18,242	11,597	7,382
5,864	1,105	928	369	694	355	135	791	68	60
420	483	401	363	238	208	285	114	68	501
-	-	7	1	-	13	46	1	-	15
2,235	15,774	115,318	44,723	8,418	14,300	16,449	22,013	4,353	8,334
9,953	5,121	6,732	5,142	1,419	2,845	3,118	2,293	375	3,407
-	394	300	2,221	294	1,270	106	6,290	-	44
-	-	9	3	-	-	2	13	-	-
1,363	1,690	3,169	1,066	1,523	950	739	1,403	223	417
176	63	48	22	7	5	11	13	8	17
-	24	36	64	21	-	11	5	-	-

## People/Pounds/Miles






COUNTRY					
	PEOPLE	POUNDS	MILES	TOTAL ITEMS COLLECTED	TOTAL ITEMS PER PERSON
MEXICO	11,781	115,125	77.7	336,046	28.5
MOZAMBIQUE	56	1,752	0.5	8,787	156.9
NAMIBIA	300	6,432	44.7	5,502	18.3
NETHERLANDS	12	1	0.1	15	1.3
NEW ZEALAND	88	715	0.5	2,695	30.6
NICARAGUA	2,329	40,985	26.9	79,183	34.0
NIGERIA	168	1,020	11.8	3,516	20.9
NORTHERN IRELAND	115	437	9.7	4,920	42.8
NORTHERN MARIANA ISLANDS	1,588	10,483	82.4	88,088	55.5
NORWAY	18	377	0.1	300	16.7
OMAN	11	110	0.9	596	54.2
PANAMA	113	2,190	1.5	9,974	88.3
PARAGUAY	195	3,829	2.7	8,206	42.1
PERU	16,461	719,379	101.7	293,693	17.8
PHILIPPINES	182,644	1,615,089	247.8	2,390,047	13.1
PORTUGAL	2	6	0.2	1	0.5
PUERTO RICO	11,326	173,875	285.7	549,744	48.5
QATAR	48	319	12.5	877	18.3
REPUBLIC OF KOREA	7,012	709,585	38.0	104,647	14.9
SABA, NETHERLANDS	114	1,740	1.2	8,411	73.8
SAINT KITTS AND NEVIS	530	6,728	12.9	27,607	52.1
SAINT LUCIA	21	1,000	3.0	1,496	71.2
SAINT VINCENT AND THE GRENADINES	245	2,900	4.2	5,944	24.3
SAUDI ARABIA	451	20,962	4.9	2,918	6.5
SCOTLAND	828	6,572	62.9	34,456	41.6
SINGAPORE	3,473	31,869	5.7	152,007	43.8
SINT MAARTEN, DUTCH WEST INDIES	626	6,892	2.0	14,393	23.0
SLOVENIA	120	595	5.5	5,366	44.7
SOUTH AFRICA	4,011	33,294	54.6	94,642	23.6
SPAIN	1,761	19,927	18.1	116,370	66.1
SRI LANKA	1,064	7,128	6.3	44,241	41.6
SWEDEN	854	12,810	34.9	6,876	8.1
SWITZERLAND	101	1,751	0.5	2,031	20.1
TAIWAN	7,589	31,437	18.9	151,867	20.0
THAILAND	3,248	27,110	9.8	43,545	13.4
TRINIDAD AND TOBAGO	380	3,427	3.0	18,586	48.9
TURKEY	287	4,232	0.5	10,075	35.1
U.S. VIRGIN ISLANDS	943	7,787	19.4	43,086	45.7
UKRAINE	100	24,000	0.8	14,687	146.9
UNITED ARAB EMIRATES	443	1,146	5.5	6,994	15.8
UNITED STATES	209,012	3,309,312	8,322.2	4,422,940	21.2
URUGUAY	728	7,714	8.1	28,909	39.7
VANUATU	23	886	0.1	583	25.3
VENEZUELA	14,119	443,781	154.1	293,509	20.8
WALES	271	1,915	44.8	14,482	53.4
<b>TOTALS</b>	<b>648,015</b>	<b>12,329,332</b>	<b>12,914.3</b>	<b>13,652,376</b>	<b>21.1</b>













# Top 10 Items Collected

 1	 2	 3	 4	 5	 6	 7	 8	 9	 10
CIGARETTE BUTTS	FOOD WRAPPERS (CANDY, CHIPS)	BEVERAGE BOTTLES (PLASTIC)	BOTTLE CAPS (PLASTIC)	STRAWS, STIRRERS	GROCERY BAGS (PLASTIC)	BEVERAGE BOTTLES (GLASS)	OTHER PLASTIC BAGS	PAPER BAGS	BEVERAGE CANS
59,679	13,518	27,450	35,447	11,574	10,668	11,288	10,833	3,845	4,039
17	156	544	911	28	112	1,275	268	98	1,398
308	396	399	316	204	209	410	184	229	237
2	-	1	1	-	1	-	2	-	2
24	5	23	7	8	18	6	33	-	11
4,023	4,520	8,816	5,760	2,605	7,979	1,098	2,590	1,092	474
53	429	298	154	216	258	74	135	50	105
309	400	211	129	-	126	27	112	26	111
4,216	4,085	34,275	2,109	983	1,262	2,755	1,833	728	7,422
-	3	20	1	4	-	10	4	-	3
68	23	79	24	12	24	9	11	14	33
32	382	1,791	603	186	459	319	463	155	195
339	702	927	357	193	825	691	807	365	313
8,826	-	19,443	-	8,994	20,202	12,154	11,959	11,333	6,183
81,416	983,719	29,410	93,355	183,153	80,177	34,985	58,229	232,069	13,119
-	-	-	-	-	-	-	-	-	-
90,663	18,030	47,850	25,748	26,162	10,009	31,474	11,880	6,245	18,840
51	38	119	14	1	84	24	63	10	98
22,129	5,617	6,124	2,099	3,363	8,830	4,263	-	-	5,388
470	71	1,264	1,019	63	65	153	100	17	217
358	906	5,812	3,429	426	724	779	388	109	564
-	10	627	15	-	2	75	2	-	389
158	361	807	291	140	7	1,418	153	141	461
259	96	127	127	58	126	99	156	63	211
852	2,972	1,954	1,716	-	609	168	545	161	715
19,391	8,207	13,356	5,111	7,100	6,005	1,827	7,800	694	1,325
1,273	371	1,143	534	645	518	1,918	617	297	990
1,857	408	272	493	504	92	60	141	13	188
2,073	8,738	9,606	10,552	6,203	811	1,259	3,495	113	741
22,995	2,614	4,276	6,780	16,661	3,795	1,541	2,551	1,046	2,295
2,561	5,547	1,486	4,677	2,653	3,210	1,074	1,719	4,190	932
2,989	323	367	442	-	253	128	228	259	201
311	6	248	5	1	2	650	-	-	673
4,380	1,583	8,229	10,113	8,946	25,175	7,918	36	6	737
3,996	1,723	1,990	2,901	2,075	1,277	2,247	6,583	1,320	2,280
333	1,461	4,008	2,012	197	208	1,393	595	138	360
6,313	112	233	586	173	210	142	34	34	210
1,773	2,430	3,406	3,673	1,848	1,126	3,381	951	591	2,541
1,875	1,543	1,488	877	115	210	1,850	45	12	1,070
1,168	360	615	433	190	266	425	239	224	487
1,086,788	338,105	241,140	303,344	132,130	92,413	110,544	88,125	34,724	162,475
1,487	1,274	2,215	2,795	1,521	1,610	463	2,307	340	250
-	29	22	2	2	4	131	25	-	168
14,786	9,180	75,254	26,781	6,229	13,392	25,691	12,013	10,666	16,552
530	792	1,049	598	-	175	46	154	18	386
2,043,470	1,685,422	940,170	847,972	555,007	441,493	394,796	389,088	368,746	339,170

## People/Pounds/Miles

COUNTRY					
	PEOPLE	POUNDS	MILES	TOTAL ITEMS COLLECTED	TOTAL ITEMS PER PERSON
ALABAMA	3,757	38,265	274.7	134,523	35.8
ALASKA	393	702	0.3	13,508	34.4
ARIZONA	150	1,196	0.6	2,905	19.4
ARKANSAS	82	932	105.4	4,229	51.6
CALIFORNIA	71,676	953,712	2274.3	759,325	10.6
COLORADO	24	760	4.0	2,214	92.3
CONNECTICUT	1,135	6,995	31.6	58,617	51.6
DELAWARE	1,927	8,009	62.5	66,247	34.4
FLORIDA	24,924	322,623	1213.3	813,236	32.6
GEORGIA	21,814	283,934	575.4	135,260	6.2
HAWAII	2,339	15,186	59.2	188,204	80.5
IDAHO	120	295	–	2,744	22.9
ILLINOIS	2,117	6,803	28.2	79,854	37.7
INDIANA	749	1,551	10.9	27,327	36.5
KANSAS	40	800	3.4	2,974	74.4
KENTUCKY	6	1,575	1.5	1,368	228.0
LOUISIANA	103	4,669	3.0	10,169	98.7
MAINE	1,321	4,519	76.2	47,523	36.0
MARYLAND	1,363	29,760	28.6	103,881	76.2
MASSACHUSETTS	2,660	56,877	129.1	150,176	56.5
MICHIGAN	2,293	4,407	124.2	86,756	37.8
MINNESOTA	308	2,934	27.2	11,930	38.7
MISSISSIPPI	1,771	32,796	92.8	58,041	32.8
MISSOURI	66	340	3.5	1,323	20.0
NEBRASKA	452	4,616	49.5	20,849	46.1
NEVADA	27	300	1.5	4,347	161.0
NEW HAMPSHIRE	1,011	2,126	20.8	43,539	43.1
NEW JERSEY	3,478	44,588	112.6	195,947	56.3
NEW MEXICO	14	300	0.2	234	16.7
NEW YORK	5,983	57,681	174.3	277,830	46.4
NORTH CAROLINA	17,728	378,122	1524.8	153,310	8.6
OHIO	1,344	19,022	65.5	68,405	50.9
OREGON	1,384	17,617	126.9	7,545	5.5
PENNSYLVANIA	9,745	423,826	378.3	48,722	5.0
RHODE ISLAND	1,188	11,921	68.4	87,477	73.6
SOUTH CAROLINA	3,555	19,386	153.8	153,017	43.0
SOUTH DAKOTA	35	525	4.0	846	24.2
TENNESSEE	54	159	7.3	3,945	73.1
TEXAS	12,412	205,953	150.2	368,003	29.6
UTAH	130	1,174	15.5	3,757	28.9
VERMONT	9	60	0.4	659	73.2
VIRGINIA	7,617	328,238	244.1	156,934	20.6
WASHINGTON	717	12,707	75.3	39,886	55.6
WISCONSIN	991	1,352	17.6	25,354	25.6
<b>TOTAL</b>	<b>209,012</b>	<b>3,309,312</b>	<b>8,322.2</b>	<b>4,422,940</b>	<b>21.2</b>

# Top 10 Items Collected

 1	 2	 3	 4	 5	 6	 7	 8	 9	 10
CIGARETTE BUTTS	FOOD WRAPPERS (CANDY, CHIPS)	BEVERAGE BOTTLES (PLASTIC)	BOTTLE CAPS (PLASTIC)	STRAWS, STIRRERS	GROCERY BAGS (PLASTIC)	BEVERAGE BOTTLES (GLASS)	OTHER PLASTIC BAGS	PAPER BAGS	BEVERAGE CANS
29,679	13,020	7,755	7,876	7,709	2,787	3,672	1,943	823	7,443
646	442	321	177	50	20	254	105	146	658
184	96	309	52	28	151	190	115	30	530
573	257	151	166	20	83	95	51	8	276
208,028	78,183	17,182	37,963	18,290	13,086	15,429	14,103	7,577	13,137
246	156	91	36	14	35	80	58	14	357
17,562	5,774	2,179	2,611	1,921	826	1,217	1,416	440	1,414
22,530	4,782	3,407	4,914	2,385	897	1,417	1,310	455	2,205
199,063	57,894	44,239	60,246	26,708	16,099	24,820	15,836	5,764	27,735
22,333	7,302	33,693	1,923	1,223	1,944	5,983	1,754	536	28,290
42,767	9,926	2,913	9,463	2,795	1,783	2,292	2,371	1,021	1,844
801	297	125	43	47	97	51	132	68	110
32,254	4,697	2,679	6,148	3,555	1,910	4,395	1,719	1,260	2,639
8,192	1,801	1,097	2,457	1,520	1,279	803	1,150	419	899
335	315	339	37	123	188	33	214	32	186
26	40	188	37	9	11	118	28	2	65
173	471	2,149	736	135	209	290	257	119	839
13,359	2,165	1,810	1,090	582	479	766	1,023	266	863
12,083	6,796	9,636	4,029	1,503	2,606	2,550	1,851	352	2,760
40,699	12,235	6,310	10,687	5,141	2,236	1,995	3,852	1,228	3,570
36,917	8,638	1,936	4,556	3,290	1,863	1,303	1,684	1,267	1,003
6,027	1,030	350	350	228	294	291	259	224	612
21,266	5,081	2,594	2,305	1,413	836	1,636	1,100	465	2,203
143	71	306	39	30	61	11	20	1	252
2,721	1,756	1,199	641	257	711	1,001	617	200	2,509
1,218	-	306	797	121	48	474	44	34	507
23,529	1,861	505	716	370	143	177	416	334	581
26,192	15,503	10,805	25,075	10,099	3,963	4,203	3,963	757	6,414
-	23	26	8	-	9	36	-	-	32
42,071	20,697	15,356	24,225	12,592	7,971	6,643	8,010	3,308	7,669
60,680	11,541	7,617	6,375	3,330	3,439	5,739	2,286	1,013	5,597
6,336	7,536	4,887	3,093	1,599	1,927	2,410	1,943	620	5,043
979	310	289	294	102	103	172	99	16	227
17,344	4,062	3,259	2,018	1,087	939	1,394	499	150	1,978
26,603	6,866	3,742	5,196	3,770	1,356	1,928	2,051	575	2,400
81,089	9,907	6,445	5,361	3,221	1,736	2,755	1,819	530	4,901
250	20	105	15	-	4	22	-	-	200
963	265	710	130	57	81	425	72	79	335
34,235	15,458	26,020	62,641	11,107	6,872	4,861	6,783	2,849	9,497
646	799	173	118	74	311	98	52	283	167
28	198	60	19	11	8	22	38	7	35
24,619	15,050	15,937	5,999	3,988	12,159	7,215	5,986	1,022	12,430
10,703	2,772	975	1,156	592	366	821	665	174	1,384
10,696	2,012	965	1,526	1,034	487	457	431	256	679
1,086,788	338,105	241,140	303,344	132,130	92,413	110,544	88,125	34,724	162,475



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