



**FY 14 NOAA Marine Debris Program
Accomplishments Report**

This spring, I had an opportunity to visit a Marine Debris Program partner who was leading beach cleanups in Florida's Biscayne National Park. She told me a piece of good news: after the cleanups started, the park's natural resource managers noticed an increase in sea turtle nesting in the area. After my initial excitement, I realized that this story was just one more example of what we've seen in the world of marine debris this year: We are making progress. We have forward momentum.

That's really the only way to describe what is happening in our program and in the marine debris community: momentum. So many of our project partners have worked hard and achieved results. The numbers rolling in from removal efforts nationwide are impressive - thousands of pounds, by our count. Thousands of people, young and old, have learned about how they can prevent marine debris through education and outreach projects. We brought people together through workshops and forged state action plans. We connected with new groups doing all they can to combat this problem.

Many of our research collaborations also culminated this year, adding to our understanding of how marine debris impacts our ocean and Great Lakes. We learned more about how litter affects beachgoers' economic welfare and the state of science on entanglement and ingestion. We also noticed a tangible increase in the amount of interest and research published worldwide on this issue, which means the forward momentum is global.

While we still have a great deal of work to do to fix this very serious problem, I am more impressed each year by the level of effort going toward solutions. With that, I am very proud to present the NOAA Marine Debris Program's accomplishments from 2014.

Nancy Wallace,
Director, NOAA Marine Debris Program



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**THE NOAA MARINE DEBRIS PROGRAM
ENVISIONS THE GLOBAL OCEAN
AND ITS COASTS, USERS, AND
INHABITANTS FREE FROM THE
IMPACTS OF MARINE DEBRIS. OUR
MISSION IS TO INVESTIGATE AND
SOLVE THE PROBLEMS THAT STEM
FROM MARINE DEBRIS, IN ORDER
TO PROTECT AND CONSERVE OUR
NATION'S MARINE ENVIRONMENT,
NATURAL RESOURCES, INDUSTRIES,
ECONOMY, AND PEOPLE.**

2014 By the Numbers



247,188 number of pounds removed

12,628 number of students reached

168 number of teachers reached

1 number of regional plans implemented

Cleaning up America's Backyard

Trash we find in our ocean and Great Lakes can range from a tiny piece of weathered plastic to a 200 pound derelict net that was once used for salmon fishing. One solution to restoring our treasured coastal waters is removing debris altogether. Over the past year, we supported projects that mitigate impacts and address the damage marine debris has caused to local habitats such as salt marshes and sea turtle nesting grounds, as well as bays and estuaries.

Here is a snapshot of our project accomplishments:

Hawai'i Wildlife Fund volunteers removed debris from Ka'u coast.



A volunteer hauls debris onto a cart in Tugidak, Alaska.

Hawai'i

The Hawai'i Wildlife Fund (HWF) removed marine debris from shorelines of Hawai'i, focusing on the Ka'u coast. Since 2012, HWF has conducted more than **43 marine debris cleanup events** removing nearly **23 metric tons** with **1,413 volunteers**.

HWF conducted regular research activities and beach cleanups at Ka'ehu on the fourth Sunday of every month.

Alaska

Tugidak Island is a critical habitat area in Alaska's Kodiak Archipelago. The Island Trails Network removed **60,000 pounds** of debris from **16.8 miles** of Tugidak's southeast coast over the **42-day** field season.

Volunteers camped for two weeks on Tugidak Island to conduct the cleanup.

Cleanup volunteers help haul away a large piece of wood debris from Lido Beach in Nassau County, New York.

New York

Hofstra University removed debris from one of the last remaining natural salt marshes in Nassau County, New York. This year, they held two clean-ups resulting in more than **11 tons** of debris, including wood and plastic, removed from the marsh.

The clean-ups involved **132 volunteers** from the community giving **557 hours** of service, including students from Hofstra University, Adelphi University, Long Beach High School, and members of the All Hands Volunteers.





Washington State

The Northwest Straits Foundation continued its longstanding efforts to remove derelict fishing nets from Puget Sound and surrounding marine waters. This year they removed **67 nets**, which contained nearly **11,700 entangled animals**.

Project leads also conducted outreach to seven Indian Tribes to explore ways to reduce fishing net loss and increase lost net reporting.

Staff from the Northwest Straits Foundation retrieve a derelict fishing net from the Puget Sound.

Washington State

The Quinault Indian Nation removed **67 nets** from the Chehalis River, **150 nets** from the Quinault River, and **85 pilings** from Grays Harbor. The removal of derelict fishing nets eliminated the risk that these nets could wash into the ocean during river flooding.

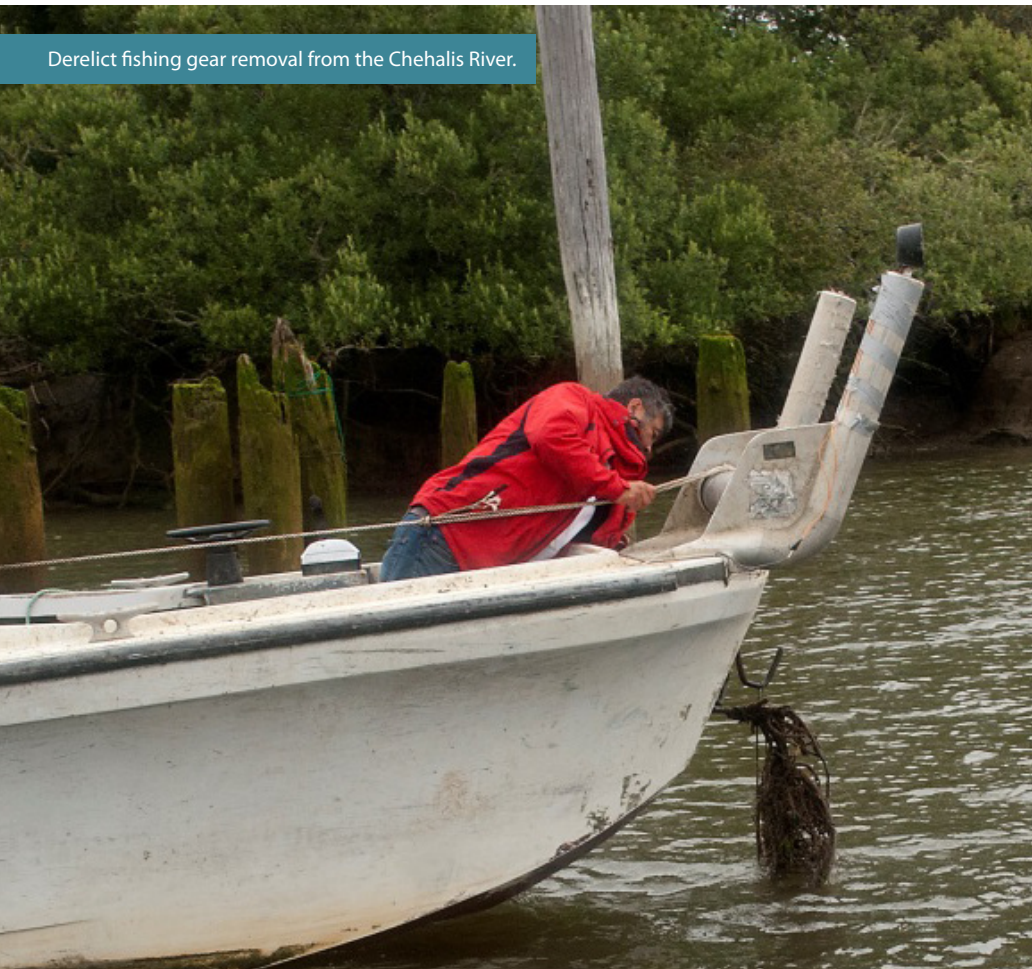
The project developed best management practices and provided net reporting tools, including GPS-enabled cameras, for Quinault fishers. A committee will also map the river for obstacles that cause net loss.

California

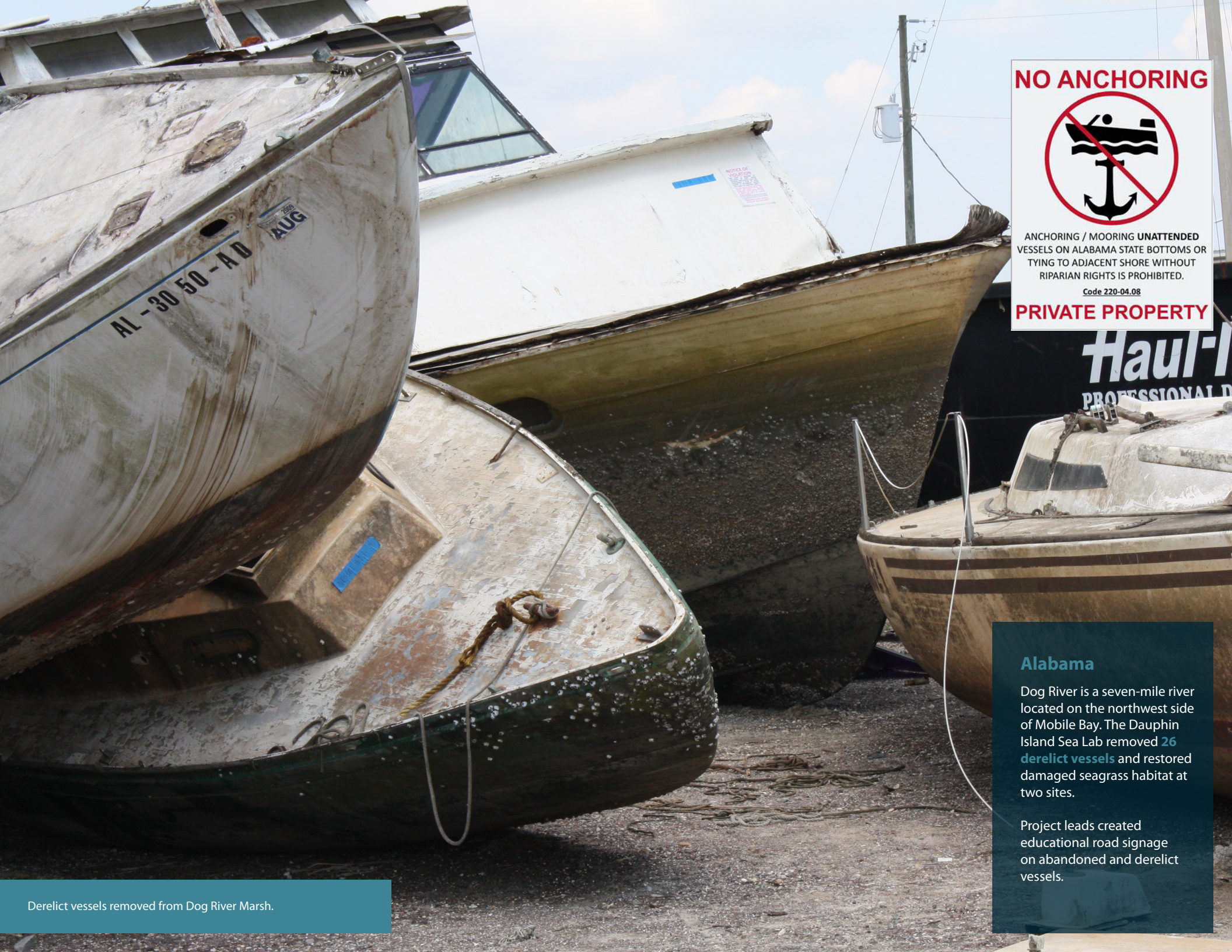
The Wiyot Tribe of the Humboldt Bay region removed **3 metric tons** of large marine debris on and around Indian Island, a National Historic Landmark. Forty volunteers participated in two cleanup events.

Indian Island is known for its religious and cultural significance to the Wiyot Tribe and is the site of the Wiyot World Renewal Ceremony.

Derelict fishing gear removal from the Chehalis River.



Remnants of old floating dock debris stand scattered throughout Humboldt Bay at Indian Island.



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Alabama

Dog River is a seven-mile river located on the northwest side of Mobile Bay. The Dauphin Island Sea Lab removed **26 derelict vessels** and restored damaged seagrass habitat at two sites.

Project leads created educational road signage on abandoned and derelict vessels.



North Carolina

The North Carolina Coastal Federation implemented a pilot program working with commercial fishermen to remove derelict crab pots and repurpose them to create an artificial oyster reef. This year they recycled **365 pots** into **700 feet** of reef and cleaned up a total of **2.5 tons** of debris.

Project leads employed **17 local fishermen** on nine boats to work on this project.

A fisherman retrieves a derelict crab pot off the North Carolina coastline.

Florida

More than 100 volunteers with the Coastal Cleanup Corporation removed **3 tons** of plastics, glass, foamed plastic, rubber and discarded fishing gear from sea turtle nesting sites within Biscayne National Park. They also collected **113 lobster/crab trap** parts and **178 lobster/crab trap** styrofoam buoys.

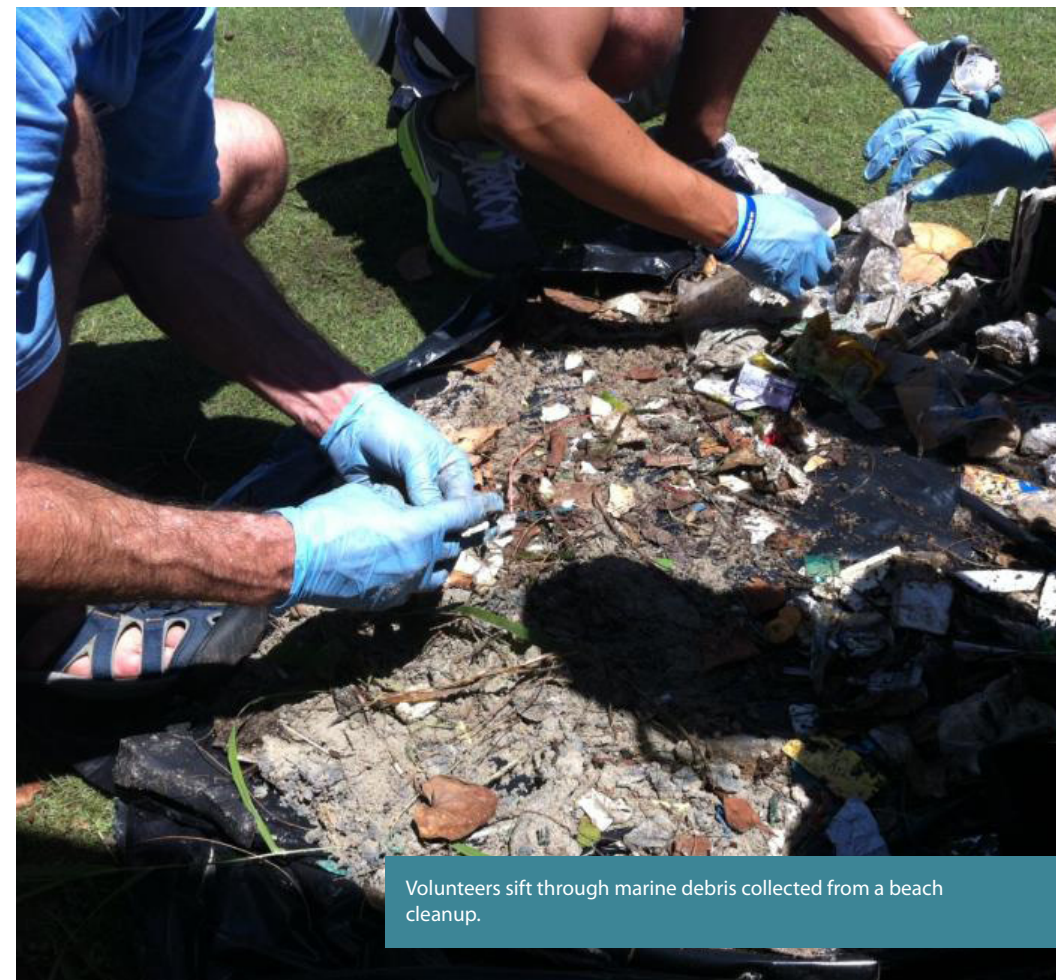
Biscayne National Park resource managers saw a significant increase in sea turtle nesting at Elliott Key after the cleanups.

Puerto Rico

Condado Lagoon is one of two natural lagoons in Puerto Rico. The Corporation for The Conservation of The San Juan Bay Estuary removed **1,153 pounds** of litter.

The team will produce two documentaries about the project; one will focus on the general marine debris issue and the other will take a closer look at underwater cleanups.

Coastal Cleanup Corporation volunteers assess marine debris collected from Biscayne National Park.



Volunteers sift through marine debris collected from a beach cleanup.



NOAA Marine Debris Program Projects by the Numbers:

- 1268** the number of pounds Save Our Shores removed from Panther Beach in CA.
- 250** the weight in pounds of a buoy from Japan that now sits at Port Allen in Oahu, Hawaii as a memorial to those lost during the 2011 tsunami.
- 85** the number of students ages 2-18 who came out to Na Kama Kai's cleanups and educational events at Waimanalo Beach Park, Oahu, Hawaii.
- 40** the number of beaches Washington CoastSavers cleaned along the state's outer coast.
- 17** the number of rapid response cleanups and surveys Oregon Surfrider conducted in sensitive areas through volunteer-based teams.

A volunteer holds a weathered balloon found during a beach cleanup.

Developing Ocean Stewards

For the past year, our education and outreach partners across the country have inspired thousands of people of all ages to be better ocean stewards. They have carried the message that **prevention** is key to solving the marine debris problem through Marine Debris Program-funded projects such as museum exhibits, curriculum development, marine debris challenges and informal curriculum, outreach to teens, teacher workshops, dockside education, hands-on cleanups and science for children.

Here is a snapshot of project accomplishments in 2014:



Educators test out marine debris curriculum at Oregon State University.



Middle school students in Georgia tally up marine debris from a beach cleanup.

Oregon State University

Oregon State University created a marine debris curriculum and hands-on activities for Oregon's 4th-12th grade students and introduced it to **20 educators** at a teacher workshop. More than **1,600** of their **students** have benefited from the curriculum and engaged in marine debris education.

10 teachers led students on marine debris cleanups as part of the curriculum.

Ocean Conservancy


Ocean Conservancy (OC) created hands-on marine debris learning activities as part of a nationwide Talking Trash and Taking Action campaign to advance marine debris solutions. They reached nearly **800 youth**, including 425 in underserved communities and 1,285 employees from 10 major corporations.

OC partnered with a variety youth groups, including AmeriCorps' City Year in Washington, DC and the Boys and Girls Club of Collier County, Florida.

University of Georgia

University of Georgia's (UGA) Project SORT led **16 educators** in curriculum and activity development, engaged **337 middle and high school students** in marine debris classroom activities, surveys and cleanups, and provided teachers an opportunity to integrate the activities into classrooms.

UGA placed **3 exhibits** at marine science centers in Georgia, featuring different plastics collected in the area.

A group of students are gathered in a large, modern hall, likely a museum or aquarium. They are looking towards the left, where a person is pointing. The students are dressed in casual attire, including plaid shirts and hoodies. The background shows a high ceiling with exposed beams and lights, and other people in the distance.

119 students attended the final event.

Monterey Bay Aquarium

Monterey Bay Aquarium provided California's K-12 teachers with an in-depth overview of marine debris, along with tools for integrating lessons into classrooms through teacher summits.

108 teachers participated in the first event.

Held **3** "Ocean Plastic Pollution Summit" events.

Teachers completed **34** projects, involving **21** elementary schools, **7** middle schools and **6** high schools.

Students at the Ocean Plastic Pollution Summit at Monterey Bay Aquarium teach and learn about marine debris impacts on our oceans.

Anchorage Museum

Anchorage Museum Association created GYRE: The Plastic Ocean, a science and art exhibit on marine plastics using marine debris collected off the Alaskan coast.

5,600 adults and students visited the exhibit as part of **75** public programs and educational events, including field trips.

80,000 visitors toured the exhibit during its 7-month run in Alaska.



As part of the GYRE exhibit, artist Cynthia Minet sculpted a "Pack of Dogs" made from recycled and repurposed plastic items. They depict waste and the complicated relationships humans have with the world we inhabit.

Students aboard the Rozalia Project discover debris at the bottom of a river using Hector the Collector an ROV used to find trash underwater.

Rozalia Project

Rozalia Project for a Clean Ocean educated people of all ages on marine debris at schools and dockside locations nationwide with camps, museums, community centers and waterfront organizations, using a remotely operated vehicle (ROV) and STEM-education curriculum and activities.

Rozalia engaged **7,900** people through schools, conferences, dockside programs, and events in **10** states.

30,000 people are signed up to receive information online through virtual "Expedition Reports."

More than **100** organizations nationwide worked with Rozalia on events and outreach opportunities.

Sea Research Foundation

The Sea Research Foundation educated **32 high school students** in New England about marine debris and provided them an opportunity to become marine debris ambassadors to the general public. The teens created outreach products that reached an estimated **10,000 visitors** at Mystic Aquarium.

One of the summit participants led a marine debris project during a summer program designed for high school students with nonverbal learning disabilities and autism spectrum disorders.

Smithsonian's National Zoo

Smithsonian's National Zoo educated **46,373 visitors** along its American Trail exhibit on how marine debris impacts seabirds and marine mammals. The exhibit included **25 trained docents**, a new an interactive marine debris kiosk that reached **4,369 people**.

You don't have to visit the zoo to learn! The National Zoo created an online game to accompany the exhibit:

<http://nationalzoo.si.edu/Animals/AmericanTrail/Interactive/>

National Building Museum

The National Building Museum's "Designing for Disasters" exhibit examines how the U.S. assesses risks from natural hazards and how we can create policies, plans, and designs for safer, more disaster resilient communities. The NOAA Marine Debris Program collaborated with the museum to feature artifacts from the Misawa dock that washed up on Washington's Olympic Coast in December of 2012 from the March 2011 tsunami that struck Japan.



Teen Marine Debris students demonstrate how household products, such as facial scrubs, contain microplastics can easily enter into water streams.



A zoo visitor learns about derelict fishing gear and sea bird entanglements at the National Zoo's American Trail.

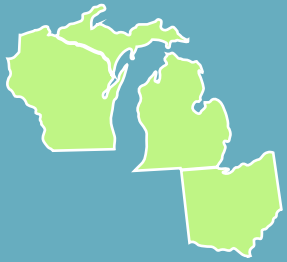


A worker uses a 30% bleach spray to decontaminate and reduce the spread of possible marine invasive species on the Japanese dock which made landfall on Washington's Olympic Peninsula in December 2012.

Regional Planning Efforts

Regional action plans are a crucial step to mitigate marine debris at the source. These road maps provide scientists, governments, stakeholders, and decision makers a clear path forward to reducing the impact of debris on our oceans and Great Lakes. The NOAA Marine Debris Program is proud to lead and assist new and on-going efforts across the region.

Completed



Great Lakes

The Great Lakes community worked together to produce the Great Lakes Land-based Marine Debris Action Plan, a road map for strategic progress to see that the Great Lakes, its coasts, people, and wildlife are free from the impacts of marine debris - the first of its kind for the region.

Kicked-off



Virginia

The Virginia Coastal Zone Management Program and its partners prioritized strategies to identify solutions that will target marine debris reduction in the Commonwealth and will build a Virginia Marine Debris Management Plan.



Southeast

North Carolina, South Carolina, and Georgia prioritized five marine debris issues for the tri-state regional action planning efforts: Derelict Fishing gear, Wildlife and Habitat Impacts, Abandoned and Derelict Vessels, Consumer Debris, and Marine Debris Emergency Response.



Florida

In Florida, the NOAA Marine Debris Program hosted a workshop to develop a statewide plan that will tackle existing marine debris priorities for both everyday marine debris and debris generated by severe weather events.

Reinvigorated



Hawai'i

The state of Hawaii established the nation's first Marine Debris Action Plan in 2010. It created a comprehensive framework for strategic action to mitigate the negative effects of marine debris. This year partners across the state gathered to determine accomplishments, gaps and challenges, and identify short term goals with long term vision for moving forward.



West Coast Governors Alliance

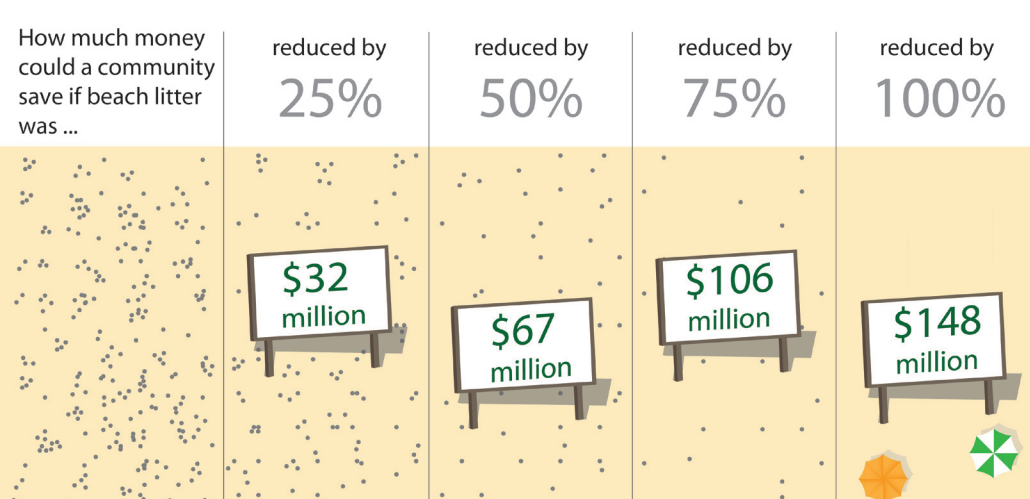
The Marine Debris Action Coordination Team will draft the "West Coast Marine Debris Coalition Implementation Plan." The plan will include strategies to approach derelict fishing gear and land-based debris, including recovery and cleanup, policy analysis and planning, funding, and research.

State of Marine Debris Science

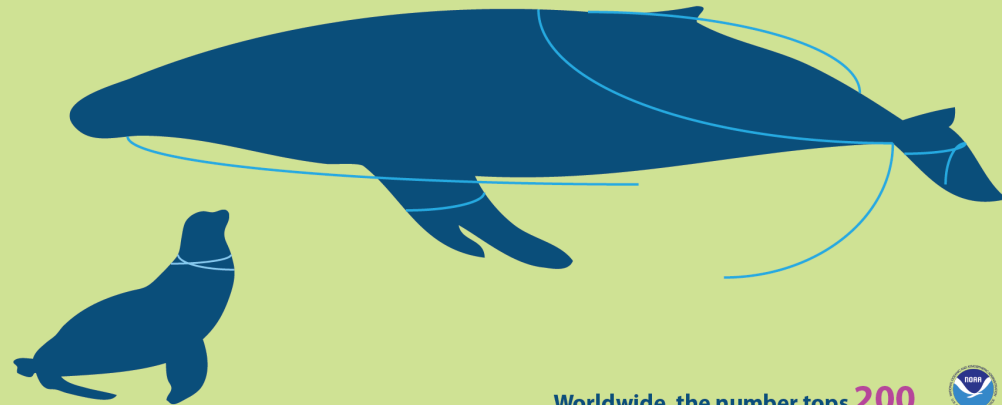
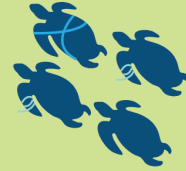
Marine debris research allows us to better understand debris impacts and identify knowledge gaps, so we can forge ahead to find solutions through targeted prevention and reduction activities. This year, the program funded projects that bring us closer to solving the marine debris problem.

Here is a snapshot of our project accomplishments in 2014:

Beachgoers may actively avoid using certain beaches because those areas are littered with marine debris. By choosing to avoid beaches with debris, individuals will likely spend more time and money to find cleaner beaches. At 31 beaches in Southern California, NOAA estimated how much money Orange County residents could potentially save by reducing marine debris.



From reports in the United States, at least **115** marine species are impacted by entanglement, including mammals, turtles, birds, fish and crab.



Worldwide, the number tops **200**.



Economics Report

The NOAA Marine Debris Program and Industrial Economics, Inc. designed a study that examines how marine debris influences people's decisions to go to the beach and what it may cost them. This economic study was the first of its kind and can be used to target beaches for cleanup and prevention activities.

Topic Papers

The NOAA Marine Debris Program and National Centers for Coastal Ocean Science published reports that assess the current state of science on two marine debris impacts: ingestion and entanglement.

Derelict Trap Study

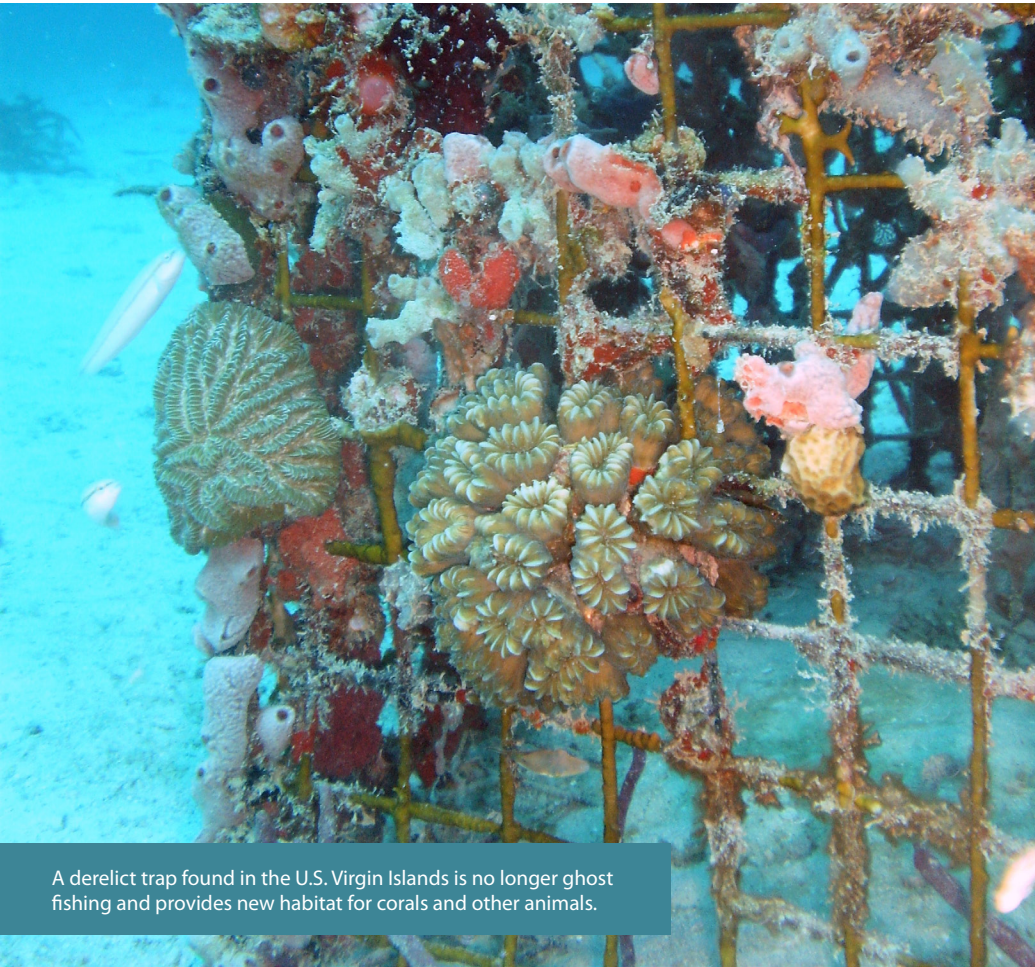
According to newly published NOAA Marine Debris Program study, derelict fishing traps are a largely preventable problem. The study, published in the Marine Pollution Bulletin, is the first to examine the derelict fish trap problem with a broad, national lens and recommend key actions to better manage and prevent them.

You can access the complete study online:
<http://www.sciencedirect.com/science/article/pii/S0025326X14004305>

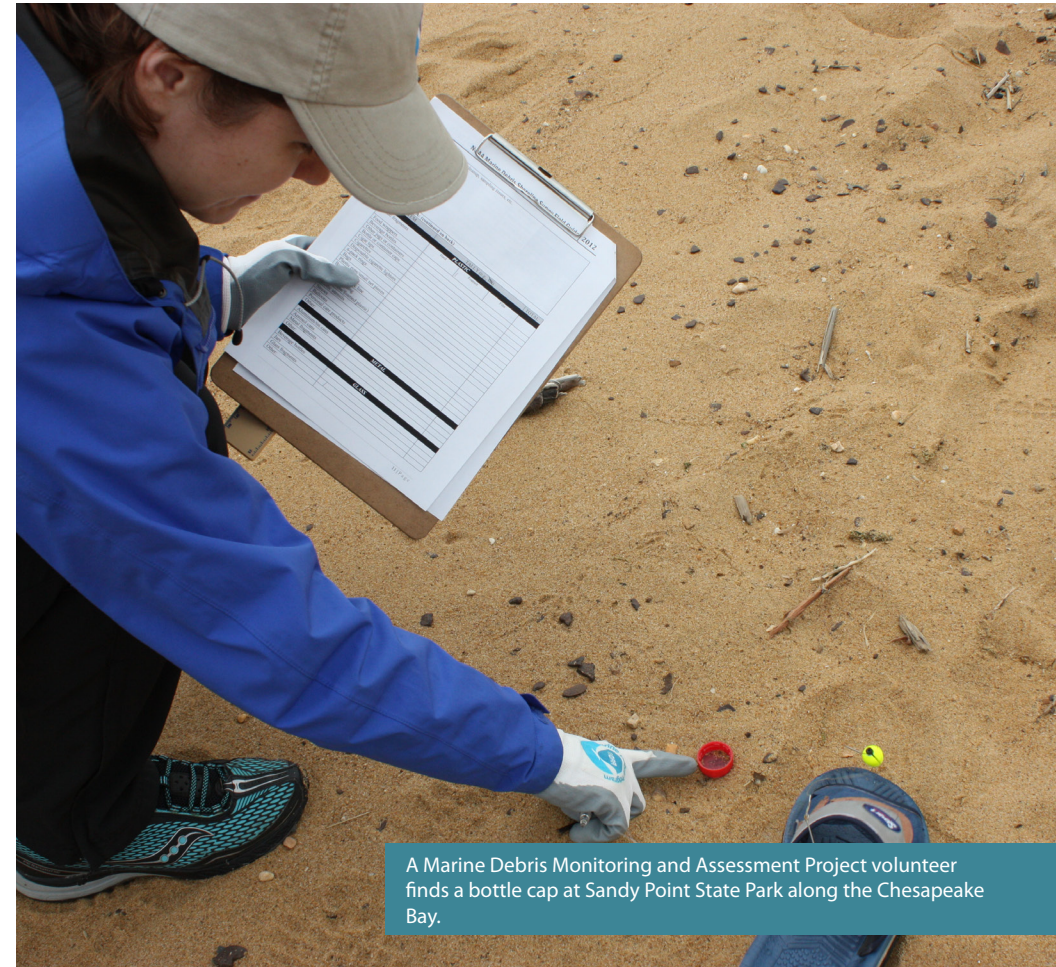
Monitoring Technical Memo

The program published standardized, scientific monitoring techniques for conducting rapid assessments of the debris material type and quantity on beaches.

Since July 2012, Gulf of the Farallones National Marine Sanctuary has recorded 3,152 marine debris items at four beaches, the majority of which are plastic followed by processed wood. Preliminary findings from three beaches show marked increase in debris after storm events.



A derelict trap found in the U.S. Virgin Islands is no longer ghost fishing and provides new habitat for corals and other animals.



A Marine Debris Monitoring and Assessment Project volunteer finds a bottle cap at Sandy Point State Park along the Chesapeake Bay.

Japan Tsunami Marine Debris

More than three years have passed since the March 2011 earthquake and tsunami in Japan. NOAA continues to work with states and local groups to address marine debris from the disaster that is washing up on U.S. shorelines.

12 confirmed items including several small boats and signs washed ashore in 2014.



Marine Debris Program Activity Highlights:

- **Forty-eight** participants from federal, state, agencies, and Indian Tribes, as well as representatives from Japan and Canada attended a NOAA workshop in Seattle to review response efforts and summarize lessons-learned and recommendations.
- The program worked with the State of Hawaii, Japanese officials, and Hawaiian Airlines to return a sign to Tanohata, a small village in the Iwate Prefecture that was devastated by the tsunami. The sign, which washed up in Oahu in September 2013, says, "Shimanokoshi village housing," and is now part of a memorial in the village.

Small vessel found on Oregon's coastline.

Superstorm Sandy

The 2012 storm known as Sandy inflicted severe damage to communities over large areas of the Mid-Atlantic and Northeast, leaving a swath of destruction and large amounts of debris in the coastal waters and marshes. Following the disaster, the program worked with impacted states to determine where marine debris removal was needed. With support from the NOAA Marine Debris Program, impacted states have formal agreements in place and have started to clean up debris.

A crane removes Sandy marine debris from New Jersey's coastline.



Rhode Island

Through a formal agreement with the Rhode Island Department of Environmental Management (RIDEM), the program will support the state to assess and remove debris from six sites. RIDEM estimates that the project locations contain more than 100 tons of debris. Debris removal will get underway by November.

Connecticut

The Connecticut Department of Energy and Environmental Protection (CTDEEP) will remove debris from eight sites. CTDEEP estimates that the sites contain approximately 160 tons of debris.

New York State

The New York State Office of Parks, Recreation, and Historic Preservation (NY Parks) has used funds provided by the program to assess and remove debris from nine state parks throughout Long Island. NY Parks completed cleanups at state park sites and removed more than 2 tons of debris.

New York City

The New York City Department of Parks and Recreation and New York City Department of Citywide Services will remove debris from eleven sites in the boroughs of Staten Island, Bronx, and Brooklyn. The city estimates that more than 40,000 cubic yards of debris will be removed as a result of support from the NOAA Marine Debris Program.

New Jersey

The New Jersey Department of Environmental Protection, removed 271 tons of debris from eight sites along the state's coastline and tidal estuary, salt marsh, and forested wetland regions.

Delaware

The NOAA Marine Debris Program completed digital surveys of the Delaware coastline, the Chesapeake and Delaware Canal, and the Delaware Inland Bays to help collect data that the Delaware Department of Natural Resources and Environmental Control will use to prioritize marine debris removal.

Acknowledgements

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5. Island Trails Network (Pg. 6, right)
6. Hofstra University (Pg. 7)
7. Northwest Straits Foundation (Pg. 8)
8. Quinault/Joe Schumacher (Pg. 9 left)
9. Sherry Lippiatt, NOAA MDP (Pg. 9, right)
10. Kimberly Albins, NOAA MDP (Pg. 10)
11. North Carolina Coastal Federation (Pg. 11)
12. Coastal Cleanup Corporation (Pg. 12, left)
13. The Corporation of the San Juan Bay Estuary (Pg. 12, right)
14. Jason Rolfe, NOAA MDP (Pg. 13)
15. Nir Barnea, NOAA MDP (Pg. 14, left)
16. University of Georgia (Pg. 14, right)
17. Monterey Bay Aquarium (Pg. 15)
18. Asma Mahdi, NOAA MDP (Pg. 16)
19. Rozalia Project (Pg. 17)
20. Keith Cialino, NOAA MDP (Pg. 18, left)
21. Asma Mahdi, NOAA MDP (Pg. 18, center)
22. Washington Department of Fish and Wildlife/Allen Pleus (Pg. 18, right)
23. NOAA/NCCOS/CCMA Biogeography Branch (Pg. 21, left)
24. Asma Mahdi, NOAA MDP (Pg. 21, right)
25. Oregon State Parks (Pg. 22)
26. Ron Ohrel, NOAA MDP (Pg. 24)

**For more information about the
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