



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Marine Debris Program

Fiscal Year 2016

Accomplishments Report

Table of Contents

Letter from the Director	3
Overview	4
10 Years of the NOAA Marine Debris Program	5
Research	6
Prevention	9
Removal	15
Abandoned and Derelict Vessel InfoHub	20
Emergency Response Planning	21
Photo Credits	22



Letter from the Director

This year has been special for the NOAA Marine Debris Program, as 2016 marked our ten-year anniversary. Looking back on the last decade, I am proud of what we have been able to accomplish and how much we've grown both in size and impact. During this time, we have supported numerous marine debris removal, prevention, and research projects around the country, resulting in thousands of tons of debris removed from our shores. We have raised the visibility of the marine debris issue and awareness of the fact that everyone can be part of the solution. The Program has also greatly advanced the state of science around marine debris, and worked with partners to identify regionally-specific challenges and ways to solve them.

Looking past our history and focusing on 2016, we have a lot to be proud of. This past year marked our first under our most recent Strategic Plan. Following this ambitious guide, we have worked toward making our vision— an end to marine debris— a reality. We saw the launch of new resources, such as our web-based monitoring toolbox and our online information hub for abandoned and derelict vessels. We supported the removal of marine debris from coastal areas across the country. We implemented innovative projects to prevent marine debris, worked with thousands of students and teachers throughout the U.S., and even saw a Regional Emmy® Award honor one of our educational resources.

As we move forward, I know that the responsibility rests with us to continue to lead the efforts against marine debris. I am proud of the Program's achievements to address this pervasive problem and although we still have a lot of work to do, I am confident in our direction for the future, learning from the past decade of excellent marine debris work. With that, I am pleased to present the NOAA Marine Debris Program's accomplishments from 2016.

Nancy Wallace
Director, NOAA Marine Debris Program

Vision

The global ocean and its coasts free from the impacts of marine debris.

Mission

To investigate and prevent the adverse impacts of marine debris.

Overview

Marine debris is a pervasive issue that threatens our ocean and coastal environments. The NOAA Marine Debris Program works to address this problem through five main program pillars: Research, Prevention, Coordination, Emergency Response, and Removal. Some of this year's most successful efforts under these five foundational areas are highlighted in this report.

10 Years

of the NOAA Marine Debris Program

This year marked our ten-year anniversary. We have accomplished a lot in the past decade, including supporting numerous research, prevention, and removal projects through our competitive grants, responding to severe marine debris events, leading marine debris action and response planning, and creating powerful education and outreach materials to raise awareness and inspire behavior change. We are proud of all that we have accomplished to prevent and reduce marine debris in our global ocean.



10 Years By the Numbers

Removed over
5,500 tons
through over 100 community-based
marine debris removal grant projects

Removed
935 tons
of debris through the annual
Northwestern Hawaiian Islands
Removal Mission

Surveyed for marine debris at
240 sites
through the Marine Debris
Monitoring and Assessment Project

Funded over
30 prevention
grant projects

Research

Research into marine debris helps to build our understanding of its sources, drivers, and impacts. This knowledge helps inform innovative solutions, targeted prevention activities, and efforts to reduce and remove debris. This year saw the completion of several multi-year research projects, the release of numerous scientific topic papers, the continued expansion of our monitoring initiative, and the launch of new [research projects](#).

Determining Influential Factors to the Leaching and Sorption of Contaminants To Microplastic Debris

Researchers from the Virginia Institute of Marine Science conducted a study to determine what factors impact the leaching and sorption of contaminants to and from microplastics. The results will provide critical information to better understand how microplastics and plastic additives interact with the marine environment.



Impact of Microplastics on Copepod Grazing

Researchers from Sea Education Association, Inc. explored the impact of microplastics on the grazing habits of small crustaceans called copepods. The study results will provide insight into microplastic impacts at the base of aquatic food chains.



Effects of Microplastic Ingestion on Aquatic Food Chains

Researchers at the University of California, Davis investigated the physical and chemical effects of microplastics in aquatic food chains. The results of the study will provide greater understanding of how higher trophic levels may be affected by microplastic debris consumed by prey.

Shoreline Marine Debris Monitoring

This year, the “[Get Started Toolbox](#)” for the Marine Debris Monitoring and Assessment Project was launched. This project engages partner organizations and volunteers across the nation in completing shoreline marine debris surveys. The Toolbox serves as a resource to aid current and new project participants in their monitoring efforts.

Over
240 Sites
surveyed through
this initiative

Impact Assessment of Derelict Fishing Gear in the Chesapeake Bay

The NOAA Marine Debris Program partnered with Global Science & Technology, Inc., the Virginia Institute of Marine Science, Versar, Inc., and CSS-Dynamac to investigate the ecological and socio-economic impacts of derelict fishing gear (DFG) in the Chesapeake Bay. Completed in 2016, this study compiled data from the past decade to determine mortality rates of captured species, damage to habitat, resulting economic losses, and to predict DFG hotspots.

Prevention

Prevention is the ultimate solution to marine debris. The NOAA Marine Debris Program supports local [prevention projects](#) and works with partners around the country to create innovative solutions which inspire people of all ages to help stop marine debris at its source.

Engaged over
44,500
K-12 students
through marine
debris education and
outreach activities

The Florida Microplastics Awareness Project

Florida Sea Grant and a network of citizen scientists sampled coastal water samples across Florida for microplastics, in an effort to learn more about their distribution, quantities, and impacts. To raise awareness about the issue, they also conducted education and outreach, and challenged people to pledge to take actions to prevent plastic marine debris.

Over
650
samples collected
from 230 sites
around Florida

More than
140
citizen scientists collected
and analyzed water
samples



School-based Marine Debris Education and Outreach in Hawaii

Hawaii Wildlife Fund developed a hands-on, science-based, marine debris curriculum for K-5th grade students. Students also tapped into their creative side and designed informative signs and artistic trash cans to create permanent beach cleanup stations which were used during family beach cleanup days.

Reached
1,140
k-5th grade students in
20 schools all over the
Island of Hawaii

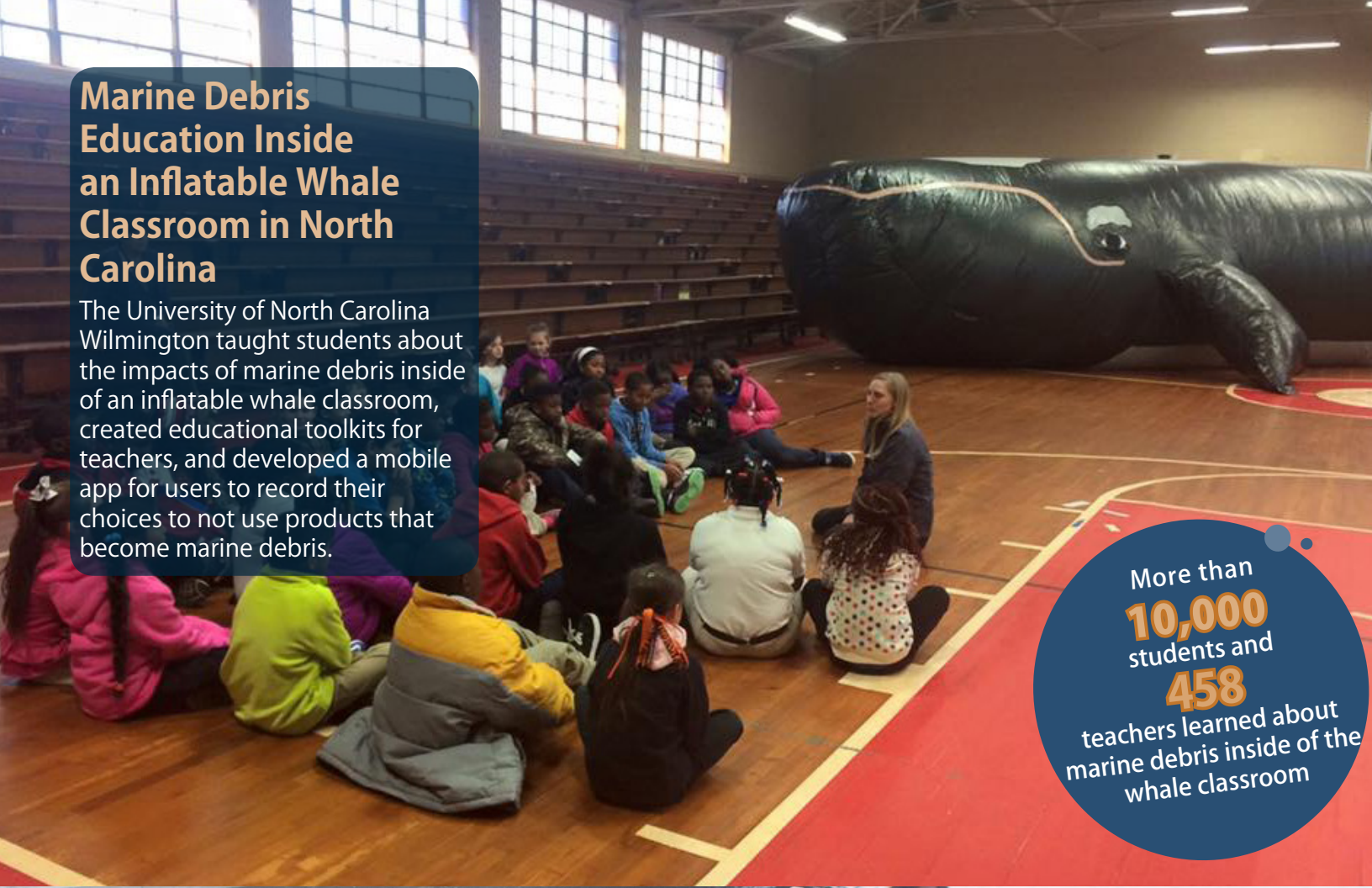
KEEP YOUR POTS CATCH MORE CRAB!

Preventing Derelict Fishing Gear in the Puget Sound

Derelict fishing gear is a big marine debris problem in the Pacific Northwest. To prevent the introduction of new derelict gear, the Northwest Straits Foundation conducted outreach with tribal, commercial, and recreational fishermen and crabbers about the impacts of derelict gear, how to prevent gear loss, and how to report lost fishing nets.

To date, over
260,000
people have viewed the
project's 5 short videos






Marine Debris Education Inside an Inflatable Whale Classroom in North Carolina

The University of North Carolina Wilmington taught students about the impacts of marine debris inside of an inflatable whale classroom, created educational toolkits for teachers, and developed a mobile app for users to record their choices to not use products that become marine debris.

More than
10,000
students and
458
teachers learned about
marine debris inside of the
whale classroom



High School Students Work to Reduce Littering in San Francisco

Littering, and not just on the coasts, is a big source of marine debris. EarthTeam worked with six teams of two teachers and twelve interns from San Francisco Bay Area high schools to create "Zero Litter Campaigns" at their schools and in their communities. The teams led education and outreach about marine debris, and analyzed and mapped data from weekly litter surveys to better understand local littering problems.

84
interns from 6 high
schools participated

More than
20,000
items of litter recorded and
removed from around the
Bay Area



More than
2,500
students and
350
teachers learned about
marine debris through
hands-on activities

Preventing Marine Debris in Florida Through Science Literacy
Educational programs that improve science literacy and foster environmental stewardship are essential to ensuring future generations grasp the problem of marine debris. Nature's Academy trained teachers in Manatee County, Florida on marine debris and provided hands-on field trips for students. The students applied the concepts they learned by developing final projects on marine debris.

Taking Marine Debris from the Shore to the State House in a Connecticut College-Level Course

The University of Hartford designed and piloted a college-level course to engage and educate students in the fight against marine debris. The curriculum introduces students to the issues of marine debris, guides them in the process of collecting and analyzing data, and then challenges them to use this information to design and assess policy alternatives and present these alternatives to their state legislators.

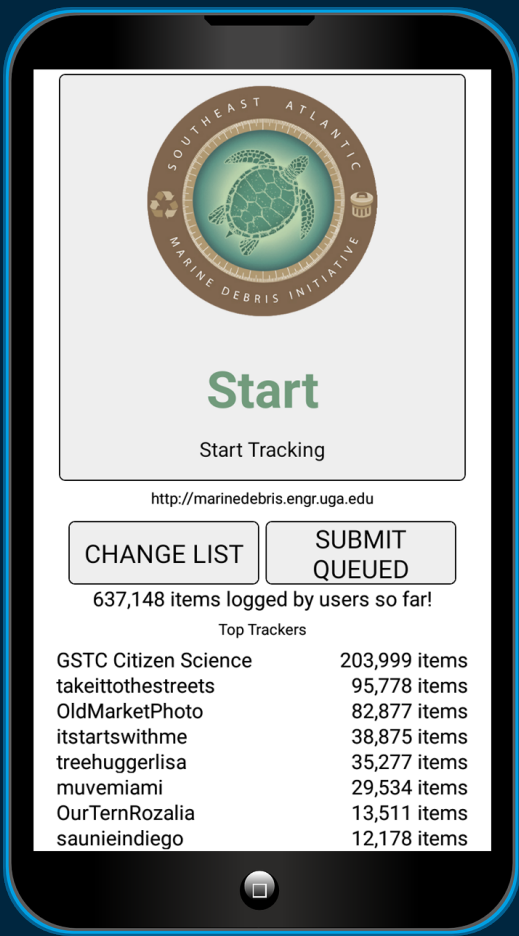
Art-Based Marine Debris Curriculum and Teacher Workshops in Oregon

Washed Ashore's "Create, Don't Waste Project" expanded on their marine debris sculpture program by creating an "Integrated Arts Marine Debris Curriculum," leading teacher training workshops, and by conducting an experiential learning program for local students in Bandon, Oregon.



Trash Talk Wins a Regional Emmy®

The NOAA Marine Debris Program and NOAA Ocean Today partnered in 2015 to produce the Trash Talk educational video series, which takes a deep-dive into the issue of marine debris, how it affects our ocean, and what people can do to prevent it. In 2016, Trash Talk was honored with a Regional Emmy® Award from the National Capital Chesapeake Bay Chapter of The National Academy of Television Arts and Sciences in the Informational/Instructional Program/Special category.



Marine Debris Tracker App

The Marine Debris Tracker App underwent an upgrade in 2016 and hit a big milestone - the one millionth item of marine debris tracked with the app! The mobile application, developed by the NOAA Marine Debris Program and the Southeast Atlantic Marine Debris Initiative through the University of Georgia, provides an easy way for citizen scientists to help collect data on marine debris from anywhere in the world.

Over
1,000,000
items of marine debris
tracked with the Marine
Debris Tracker App!

30 Years of the International Coastal Cleanup

Over the last 30 years, the International Coastal Cleanup has brought people together from around the globe to clean up marine debris in their local communities. This is no small effort, and the NOAA Marine Debris Program has been proud to partner with Ocean Conservancy to support this initiative for the past 10 years.

Removal

While prevention is essential to stopping the influx of new marine debris, removal is necessary to diminish the impacts of debris that's already there. The NOAA Marine Debris Program supports locally-driven, community-based marine debris [removal projects](#) to mitigate the impacts of debris on habitats, wildlife, and coastal communities. The following are some of this year's most successful removal efforts.

Removed over
1,775 tons
of debris

Removed almost
70 Tons
of derelict fishing
gear

Removed
52
abandoned and
derelict vessels

Abandoned and Derelict Vessels in Bayou La Batre, Alabama

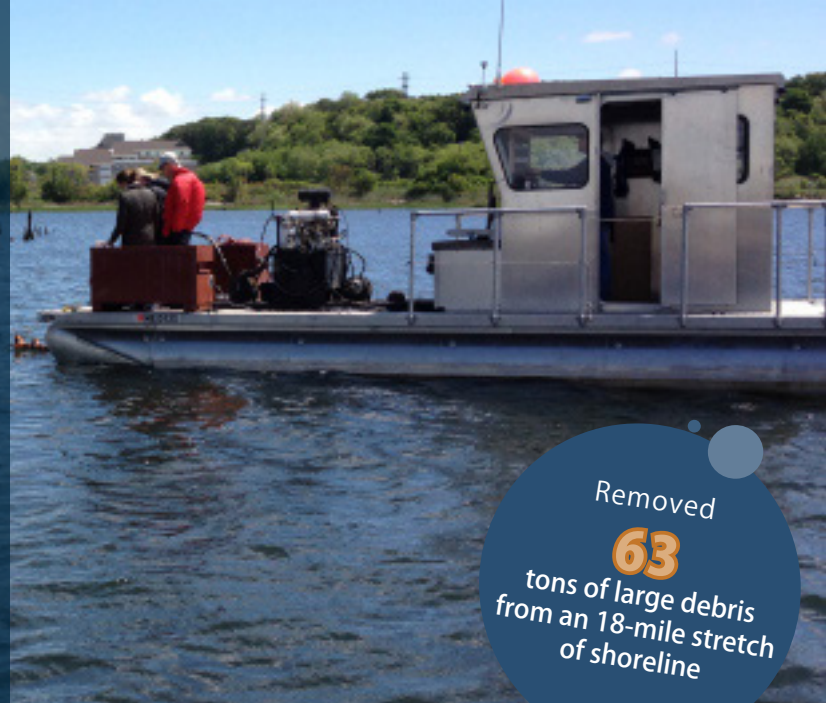
Working with the Alabama Department of Conservation and Natural Resources and the Bayou La Batre Port Authority, the City of Bayou La Batre removed 22 abandoned and derelict vessels which were hazards to navigation and causing damage to the surrounding environment. The City also worked with the Dauphin Island Sea Lab and volunteers from The Nature Conservancy to restore and monitor the affected habitats.

848
local students were
educated about the
impacts of marine
debris

Over
19,300
square feet of
habitat
were restored

Industrial Debris in Rhode Island

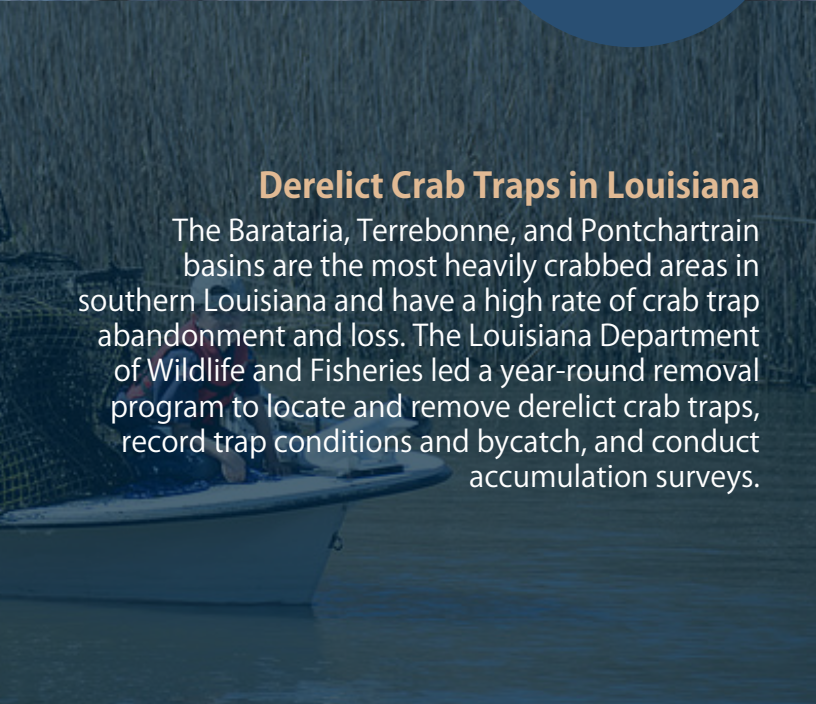
The shoreline of East Providence, Rhode Island is littered with large debris items as well as remnants of historic maritime activities, mills, and steel and petroleum industries. In the first year of this two-year project, Clean Bays removed three abandoned and derelict vessels, dozens of abandoned docks, and tons of tires.



Removed
63
tons of large debris
from an 18-mile stretch
of shoreline



2,631
crab pots were removed
during the closed
crabbing season through
2 community volunteer
crab trap rodeos



Derelict Crab Traps in Louisiana

The Barataria, Terrebonne, and Pontchartrain basins are the most heavily crabbed areas in southern Louisiana and have a high rate of crab trap abandonment and loss. The Louisiana Department of Wildlife and Fisheries led a year-round removal program to locate and remove derelict crab traps, record trap conditions and bycatch, and conduct accumulation surveys.

Large Debris and Shoreline Restoration on Belle Isle, Michigan

Marine debris is a problem for all coastal communities, including those in the Great Lakes. This year, the Alliance for the Great Lakes removed 80 tons of large debris from Belle Isle, a 982-acre island and state park in the middle of the Detroit River, and led student groups in stewardship days to clean up small debris and restore the natural coastal wetland habitat by planting native plants along the shoreline.



Abandoned and Derelict Vessels in the U.S. Virgin Islands

The Coral Bay Community Council removed nine abandoned and derelict vessels which posed a navigational hazard, and threatened the surrounding seagrass and coral habitat within Coral Bay, St. John. In addition, the project led a public outreach campaign to prevent littering and held community coastal cleanups.



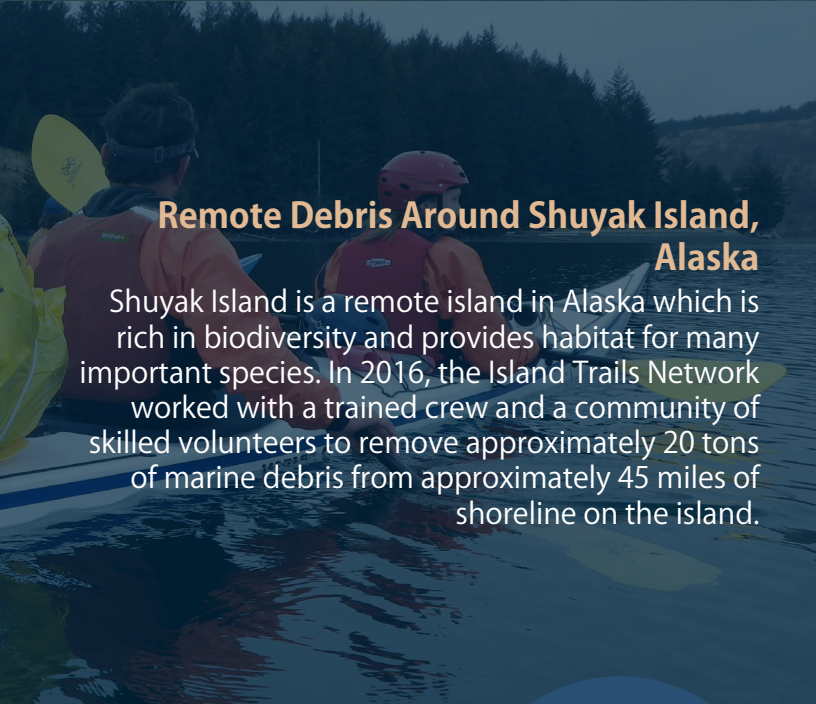
40

volunteers from around the world participated and used sea kayaks to access the island's beaches



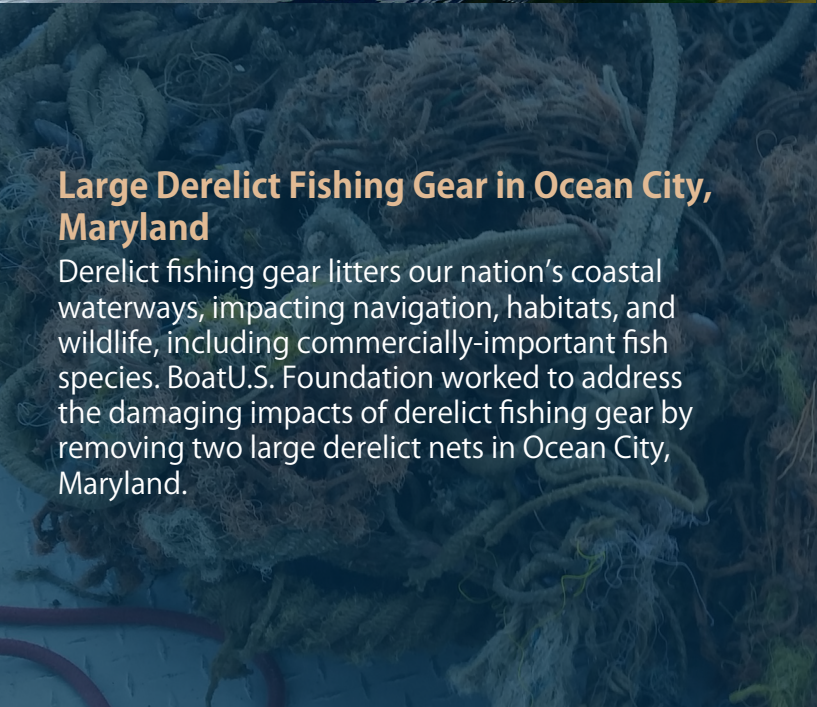
Remote Debris Around Shuyak Island, Alaska

Shuyak Island is a remote island in Alaska which is rich in biodiversity and provides habitat for many important species. In 2016, the Island Trails Network worked with a trained crew and a community of skilled volunteers to remove approximately 20 tons of marine debris from approximately 45 miles of shoreline on the island.



Large Derelict Fishing Gear in Ocean City, Maryland

Derelict fishing gear litters our nation's coastal waterways, impacting navigation, habitats, and wildlife, including commercially-important fish species. BoatU.S. Foundation worked to address the damaging impacts of derelict fishing gear by removing two large derelict nets in Ocean City, Maryland.



Combined, the removed nets weighed over **10 tons**



Northwestern Hawaiian Islands Removal Mission

The Northwestern Hawaiian Islands are encompassed by the Papahānaumokuākea Marine National Monument, currently the largest marine protected area in the world, and are home to more than 7,000 marine species. Due to currents and trade winds in the North Pacific, large amounts of marine debris accumulate on the reefs and beaches of the Northwestern Hawaiian Islands, presenting potentially lethal threats to the wildlife that calls this area home. When the NOAA Marine Debris Program was established in 2006, it joined an ongoing NOAA effort to remove debris from this area. Here are some of the highlights from this year's removal mission:

2016 Northwestern Hawaiian Islands Removal Highlights



1,200 lb
net removed from
Pearl and Hermes Atoll,
Southeast Island

32 day
mission



2,600
buoys



1,843
derelict fishing nets
or net fragments

Team of
10
NOAA
scientists

5
Islands/Atolls
surveyed



1,468
beverage bottles

8,562
hard plastic
fragments

570
shoes and
flip flops



Abandoned and Derelict Vessel InfoHub

Thousands of abandoned and derelict vessels (ADV) litter ports, coastlines, and estuaries all over the country, threatening our waterways by obstructing navigational channels, causing harm to the environment, and diminishing commercial and recreational activities. This year, we launched the [ADV InfoHub](#), an online tool serving as a central source of information regarding ADVs and the policies surrounding their removal in each coastal state.

Emergency Response Planning

Marine debris ends up on our coasts and in the ocean every day as a result of littering and poor waste management, but natural and man-made disasters have the potential to make this everyday problem worse. In 2016, the NOAA Marine Debris Program worked with local, state, tribal, and federal partners around the country to improve preparedness for natural and man-made disasters through the development of [marine debris response plans](#). These plans aim to outline existing structures to facilitate coordinated, well-managed, and immediate responses to acute waterway debris incidents.

Completed 2 new
marine debris
response plans in

**Florida &
North Carolina**

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11. Hawaii Wildlife Fund (Page 9, top)
12. Florida Sea Grant (Page 9, bottom)
13. Hawaii Wildlife Fund (Page 10, top)
14. Northwest Straits Foundation (Page 10, bottom)
15. University of North Carolina Wilmington MarineQuest (Page 11, top)
16. EarthTeam (Page 11, bottom)
17. Nature's Academy (Page 12)
18. NOAA (Page 13, top)
19. NOAA (Page 13, bottom)
20. Southeast Atlantic Marine Debris Initiative, University of Georgia (Page 14, top)
21. NOAA (Page 14, bottom)
22. NOAA (Page 15, bottom)
23. NOAA (Page 16, top)
24. Louisiana Sea Grant (Page 16, middle)
25. Alliance for the Great Lakes (Page 16, bottom)
26. Sean Richardson, Coral Bay Community Council (Page 17, top)
27. Island Trails Network (Page 17, middle)
28. BoatU.S. (Page 17, bottom)
29. NOAA PIFSC Coral Reef Ecosystem Program (Page 18, top left)
30. NOAA PIFSC Coral Reef Ecosystem Program (Page 18, middle)
31. NOAA PIFSC Coral Reef Ecosystem Program (Page 18, bottom)
32. NOAA PIFSC Coral Reef Ecosystem Program (Page 19, top left)
33. NOAA PIFSC Coral Reef Ecosystem Program (Page 19, middle)
34. NOAA PIFSC Coral Reef Ecosystem Program (Page 19, bottom left)
35. NOAA PIFSC Coral Reef Ecosystem Program (Page 19, bottom right)
36. NOAA (Page 20)
37. NOAA (Page 21)

NOAA Marine Debris Program
Office of Response and Restoration
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