

**WRITTEN TESTIMONY OF
NANCY WALLACE
DIRECTOR OF THE MARINE DEBRIS PROGRAM
OFFICE OF RESPONSE AND RESTORATION
NATIONAL OCEAN SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE**

**HEARING ON MARINE DEBRIS
BEFORE THE
SUBCOMMITTEE ON OCEANS, ATMOSPHERE, FISHERIES, AND COAST
GUARD
SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE**

July 25, 2017

Introduction

Good afternoon Chairman Sullivan, Ranking Member Peters, and members of the Subcommittee, thank you for this opportunity to testify on the issue of marine debris. My name is Nancy Wallace and I am the Director of the Marine Debris Program at the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce.

Marine Debris, as defined by the Marine Debris Act, is, “any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes.” Marine debris ranges from lost or abandoned fishing gear and vessels, to plastics, glass, metal, and rubber of any size, and is an on-going international problem that impacts our natural resources. The NOAA Marine Debris Program (MDP) leads national efforts to research, prevent, and reduce the impacts of marine debris. Authorized by the Marine Debris Research, Prevention, and Reduction Act and Amendments (P.L. 109-449, P.L. 112-213) (“Marine Debris Act”), the program supports marine debris projects in partnership with state and local agencies, tribes, non-governmental organizations, academia, and industry. NOAA spearheads national research efforts, engages with the Department of State and international organizations on global marine debris efforts, and works to change behavior through outreach and education initiatives.

NOAA recognizes that marine debris is a global problem and that there is no ‘one size fits all’ solution to addressing this issue on national and international scales. A recent study estimated that of the 275 million metric tons of plastic waste generated by 192 coastal countries in 2010, approximately 8 million metric tons entered the ocean (Jambeck et al. 2015). A large portion of

the plastic was contributed by rapidly growing, middle-income countries whose waste management infrastructures are unable to keep pace with increasing economic growth and population sizes. Yet, even countries that have made considerable efforts to address plastic debris were still top contributors of mismanaged plastic. When paired with the fact that the Jambeck study addressed only plastic debris and not other substantial sources of marine debris, such as derelict fishing gear and abandoned vessels, it is clear that there is still much work to be done to find solutions to marine debris on both the national and international levels.

Today I will focus my testimony on the Marine Debris Act, the impacts of marine debris in the ocean and Great Lakes, and the program pillars of NOAA's MDP.

Marine Debris Act

The MDP is authorized by Congress as the federal lead to work on marine debris through the Marine Debris Act, signed into law in 2006 and amended in 2012. The Act authorizes the Administrator of NOAA, through the MDP, to “identify, determine sources of, assess, prevent, reduce, and remove marine debris and address the adverse impacts of marine debris on the economy of the United States, marine environment, and navigation safety.” (33 U.S.C. § 1952). The Act further directs the Administrator, through the MDP, to “provide national and regional coordination to assist States, Indian tribes, and regional organizations,” “undertake efforts to reduce the adverse impacts of lost and discarded fishing gear on living marine resources and navigation safety,” “undertake outreach and education activities for the public and other stakeholders” on marine debris issues, develop “interagency plans for the timely response to events,” and “enter into cooperative agreements and contracts and provide financial assistance in the form of grants for projects to accomplish the purpose” of the Act. 33 U.S.C. § 1952(b)-(c). The amendment in 2012 reauthorized the program and directs NOAA to address and determine severe marine debris events. The Marine Debris Act is the only comprehensive federal legislation that addresses all types of marine debris in the ocean and coastal environment.

Marine Debris Impacts

Marine debris causes significant threats not only to ocean and coastal environments and wildlife, but also to human health, safety, and navigation. Each year, countless marine animals, sea turtles, and seabirds are injured or die because of entanglement in or ingestion of marine debris. Additionally, debris can scour, break, smother, or otherwise damage important marine habitat, such as coral reefs and tidal wetlands, that serve as the basis of marine ecosystems and are critical to the survival of many important species. Derelict fishing gear, such as nets and crab pots, can continue to capture fish – something we refer to as “ghost fishing” – for years after they are lost. Not only does this affect the species that end up as bycatch in the lost gear by reducing the abundance and reproductive capacity of the population, but it also causes fishermen economic losses. For example, a recent study on the effects of derelict blue crab traps in the Chesapeake Bay by Bilkovic et al. (2016) estimated that ghost-pot removal efforts increased

harvest value by \$33.5 million over a six-year period. There is also mounting concern over the potential for marine debris to serve as a pathway for the introduction of non-native species. An extensive literature review by Thiel and Gutow (2005) reported over 1,200 species associated with debris from sources all over the globe. Along with such ecosystem impacts, coastal communities collectively spend millions of dollars annually preventing debris from washing up on their shorelines and removing debris that does come ashore. It not only degrades the natural beauty of our coasts, but it threatens the safety of those who work and play there.

Marine debris also creates navigation hazards. Ropes, plastics, derelict fishing gear, and other objects can become entangled in vessel propellers or clog water intakes causing operational problems, while larger items, such as lost shipping containers, can become collision dangers. Such interactions with marine debris involve costly engine repairs and disablement. Abandoned vessels are another navigational threat in our coastal waterways that have become a serious marine debris problem in many states. The dangerous and costly impacts of these different types of marine debris affect both the recreational boating and commercial shipping communities, and NOAA is actively seeking partnerships with these communities to expand our area of knowledge and proactively address the dangers.

The NOAA Marine Debris Program in 2017

The MDP, guided by the Marine Debris Act, is focused around five program pillars: research, removal, prevention, emergency response and regional coordination.

Research

A key tenet of the MDP is research. Congress recognized the need for research that determines the sources and helps us understand the adverse impacts of debris on the marine environment and navigation safety. 33 U.S.C. § 1952(b)(1). The field of marine debris research is relatively young with many questions that need to be answered in order to advance our understanding of the relationship between marine debris and the environment. Over the past 10 years, NOAA has funded research projects focusing on the effects of microplastics on marine species, development of standardized methods for marine debris monitoring, and assessment of the economic and environmental impacts of derelict fishing gear and consumer debris. For example, the program funded a 2014 study that evaluated the economic costs of marine debris on beaches in southern California. Authors found that a twenty-five percent decrease in marine debris could result in ~\$32 million in beach recreation benefits to local residents during the summer months (Leggett et al. 2014).

Currently, NOAA is collaborating with several academic partners to quantify and characterize microplastic debris in the Mississippi River and how it may eventually affect the Gulf of Mexico. This study and others are working to fill critical knowledge gaps about microplastics and other debris types in terms of where it is coming from, where it ends up, and how it is impacting the

environment. In continuing to fill such gaps, the program plans to fund new research projects in FY17.

Removal

Since its inception, the MDP has been actively involved in marine debris removal across the United States. A portion of the program's budget goes toward supporting removal projects annually, including locally driven, community-based marine debris prevention and removal projects that benefit coastal habitat, waterways, and wildlife including migratory fish.

Removal of marine debris can be logistically challenging, particularly in remote locations such as Alaska. NOAA is currently supporting a derelict crab pot removal and recycling effort by the Douglas Indian Association in Gastineau Channel, outside of Juneau, Alaska, aimed at reducing loss of commercial species to ghost-fishing. In the last few months, tribal members have worked with other partners such as the Alaska State Troopers to identify, quantify, remove, and recycle or return derelict pots as well as discussed data applications and steps forward. The program is also partnering with the Sitka Sound Science Center to remove marine debris from remote, marine debris "hotspot" communities in the Bering Sea, such as Savoonga on St. Lawrence Island and St. Paul in the Pribilof Islands.

Prevention

One of the most effective ways to reduce marine debris is through prevention, which requires that boaters, fishermen, industry, and the general public have the knowledge and training to change the behaviors that create marine debris. NOAA's robust outreach and education activities focus on improving awareness and changing behavior through developing and disseminating public information, and by partnering with and providing funding support to external groups including academic partners, local governments, and nonprofit groups.

One of the greatest challenges of prevention is finding effective ways to reach diverse audiences and help them discover how they can participate in local solutions to marine debris. The National Aquarium in Maryland, in partnership with NOAA, is working with underserved communities in Baltimore to create a network of leaders to spearhead prevention efforts such as community cleanup events and communication trainings. In Mississippi, Ship Island Excursions is using their ferry service as a platform to educate passengers, many of which are students from underserved schools, on the impacts of marine debris on the Gulf of Mexico, and how they can prevent the issue.

The materials and products from our other partnerships, such as marine debris curricula, are all free and downloadable from the [MDP website](#), and the program's regional coordinators do extensive boots-on-the ground outreach year-round to promote and share these products.

Regional Coordination

Working with non-governmental, regional, and international organizations, academia, and local, state, and federal governments will enhance marine debris efforts across the country. The program's regional coordinators extensively cover marine debris issues in the Pacific Islands, West Coast, Alaska, Great Lakes, East Coast, Gulf of Mexico, and Caribbean. While these coordinators focus on the local, state, and regional issues as a part of the national program, they also bring in lessons learned and make connections across the country and the world.

NOAA is leading an effort with states to develop [marine debris action plans](#), which outline major goals for preventing and reducing marine debris. Marine debris action plans are complete for Virginia, Florida, the Great Lakes, Oregon, and Hawaii, with plans in progress for the Gulf of Maine, Mid-Atlantic, Southeast, California, and Alaska. NOAA also continues to work with partners throughout the country to develop and test innovative and cost-effective methods of detection and removal of marine debris, and to engage the public and industry, including shippers and fishermen, and the recreational community on marine debris.

Emergency Response

Coastal storms and natural disasters are another source of marine debris that create hazards in our inland and coastal waters. NOAA has responded to emergency events including Hurricanes Katrina and Rita, the American Samoa and Japan tsunamis, and Superstorm Sandy. Following the Japan Tsunami, the program spearheaded detection, modeling, monitoring, planning, and removal efforts for debris from Japan that made its way to U.S. shores. NOAA also contributed initial funding to the states of Hawaii, Alaska, Washington, Oregon, and California for removal and response efforts, and was responsible for administering the monetary gift from Japan of \$5 million under the Gift Act, 15 U.S.C. § 1522, to assist with debris removal in these states. Similarly, following Superstorm Sandy, NOAA worked with the affected states (Rhode Island, Connecticut, New York, New Jersey, and Delaware) on debris modeling, surveying, and removal using funds from the Disaster Relief Appropriations Act of 2013.

NOAA also works with federal, state, and local partners to develop [Emergency Response Plans](#) that outline the processes and roles of each partner for responding to and recovering from a severe marine debris event, such as a hurricane. To date, plans have been completed for North and South Carolina, Georgia, Florida, Alabama, and Mississippi, and plans for Louisiana and Virginia are currently in progress.

National Coordination

As mandated in the Marine Debris Act, 33 U.S.C. § 1954, NOAA is the chair of the Interagency Marine Debris Coordinating Committee (IMDCC), a multi-agency body that is responsible for streamlining the federal government's efforts to address marine debris. Representative agencies coordinate a comprehensive program of marine debris activities and report to Congress every

two years on research priorities, monitoring techniques, educational programs, and regulatory action. Members include: Departments of State, Interior, Justice, and Homeland Security; U.S. Navy; U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; and the U.S. Marine Mammal Commission.

This IMDCC Progress Report provides an update on the activities of federal agencies to address marine debris, as mandated by the Marine Debris Act. In 2008, the IMDCC delivered the “*Interagency Report on Marine Debris Sources, Impacts, Strategies, and Recommendations.*” Subsequent biennial progress reports have evaluated progress in meeting the purposes of the Act and these recommendations.

In addition to the IMDCC, the program also partners with other agencies on funded projects, such as a recently completed collaboration with the National Park Service and Clemson University that collected and analyzed beach sediments to assess the abundance and distribution of microplastics and microfibers on U.S. National Park beaches. NOAA has also been contributing to a multi-year, multi-partner effort between the U.S. Fish and Wildlife Service and others to remove debris from the Northwest Hawaiian Islands. In April 2017, ~100,000 pounds of derelict fishing gear and plastics were transported from Midway and Kure Atolls to Honolulu, and incorporated into the Hawaii Nets-to-Energy program, a highly successful strategic partnership between agencies, industry, and local partners. NOAA, the City and County of Honolulu, the State of Hawaii, Covanta Energy Corporation/H-Power, and Schnitzer Steel Industries, Inc. work together to convert derelict fishing gear and plastics into energy. Since its initiation in 2002, this program has created enough electricity to power over 350 homes for a year in O’ahu. NOAA plans to foster similar collaborations with other agencies and industry partners moving forward.

NOAA has also worked extensively with the U.S. Coast Guard (USCG) on contingency and emergency response planning on the West coast and in the Southeast and Gulf of Mexico, respectively. Additionally, the USCG provided valuable sighting reports of marine debris from the Japan tsunami to NOAA’s Office of Response and Restoration (OR&R), which houses the MDP. From these data, OR&R was able to generate trajectories for locating and removing debris items that landed on U.S. shorelines.

International Engagement

Marine debris is a global problem that has local solutions. In many countries, population size and consumption of plastic and other consumer debris are increasing more quickly than the capacity to manage waste, and thus solutions must be shaped to address country-specific challenges. To help others move forward in finding their own unique solutions, NOAA works closely with the Department of State and participates in other international efforts including: the U.N. Environment Global Partnership on Marine Litter (chair), the G7 and G20 Marine Litter

Cooperation, the Global Ghost Gear Initiative, the Asia-Pacific Economic Cooperation (APEC) (co-chair), the North Pacific Marine Science Organization (co-chair), the African Marine Waste Network, and implementation of Indonesia's National Action Plan on Marine Plastic Debris. As the APEC co-chair, NOAA is working to increase collaboration with industry and non-government organizations, such as the American Chemistry Council, Ocean Conservancy, and other international partners that will help address the diverse waste management challenges around the world to minimize the amount of marine debris.

NOAA is also working with the U.N. Environment Programme to help organize and facilitate the 6th International Marine Debris Conference in San Diego, California, March 12-16, 2018. The conference will bring together more than 600 participants from around the world, ranging from policy and decision makers, to waste management representatives, scientists, private industry, and civil society as well as facilitate connections, provide an opportunity for participants to exchange information and individual recommendations, and transcend geographic boundaries in the fight against marine debris.

Conclusion

All marine debris comes from humans, and thus it is a problem we can, for the most part, prevent. NOAA will continue to pursue on-the-ground research, prevention, and reduction of marine debris nationwide and work with international and other partners to find solutions that fit the unique challenges posed by marine debris, particularly with respect to waste management. While the problem of marine debris has existed for decades and has received considerable attention from NOAA and other partners, there is still much to learn as we work to address the impacts of marine debris on the environment, marine species, and human health and safety. NOAA is committed to investigating and preventing the adverse impacts of marine debris, and looks forward to working with the Committee to achieve our vision of seeing the global ocean and coasts free of debris.

Thank you very much for the opportunity to testify about this important issue. I would be happy to answer any questions you may have.

References

Bilkovic DM, Slacum Jr. HW, Zaveta D, Jeffrey CFG, Scheld AM, Stanhope D, et al. 2016. Ecological and economic effects of derelict fishing gear in the Chesapeake Bay: 2015/2016 Final Assessment Report. Retrieved from NOAA Marine Debris Program website:

[https://marinedebris.noaa.gov/sites/default/files/publications-files/DFG Effects Chesapeake Bay Final Report 2016.pdf](https://marinedebris.noaa.gov/sites/default/files/publications-files/DFG_Effects_Chesapeake_Bay_Final_Report_2016.pdf)

Leggett C, Scherer N, Curry M, Bailey R, Haab T. 2014. Final Report: Assessing the Economic Benefits of Reductions in Marine Debris: A Pilot Study of Beach Recreation in Orange County, California. Retrieved from NOAA Marine Debris Program website:

https://marinedebris.noaa.gov/sites/default/files/publications-files/MarineDebrisEconomicStudy_0.pdf

Jambeck JR, Geyer R, Wilcox C, Siegler TR, Perryman M, Andrady A, Narayan R, Law KL. 2015. Plastic waste inputs from land into the ocean, *Science*, 347(6223):768-771. DOI: 10.1126/science.1260352

Thiel, M., & Gutow, L. 2005. The ecology of rafting in the marine environment. II. The rafting organisms and community. *Oceanography and Marine Biology: An Annual Review*, 43, 279-418.