



REPORT TO CONGRESS

2018-2019 INTERAGENCY MARINE DEBRIS COORDINATING COMMITTEE BIENNIAL REPORT

*Developed pursuant to: Marine Debris Research, Prevention, and Reduction Act, 2006
(Public Law 109-449), as amended*

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THIS INTERAGENCY MARINE DEBRIS COORDINATING COMMITTEE PROGRESS REPORT IS PROVIDED PURSUANT TO THE MARINE DEBRIS ACT (33 U.S.C. §1951 ET SEQ) AND SECTION 1954(E) OF THE ACT REQUIRES

(e) Biennial Progress Reports. Biennially, the Committee, through the Chairperson, shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure and the Committee on Natural Resources of the House of Representatives a report that evaluates United States and international progress in meeting the purpose of this chapter. The report shall include—

- (1) the status of implementation of any recommendations and strategies of the Committee and analysis of their effectiveness;
- (2) a summary of the marine debris inventory to be maintained by the National Oceanic and Atmospheric Administration;
- (3) a review of the National Oceanic and Atmospheric Administration program authorized by section 1952 of this title, including projects funded and accomplishments relating to reduction and prevention of marine debris;
- (4) a review of Coast Guard programs and accomplishments relating to marine debris removal, including enforcement and compliance with MARPOL requirements; and
- (5) estimated Federal and non-Federal funding provided for marine debris and recommendations for priority funding needs.

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Interagency Marine Debris Coordinating Committee

Chair, Department of Commerce, National Oceanic and Atmospheric Administration

Vice-Chair, United States Environmental Protection Agency

Department of Defense, United States Army Corps of Engineers

Department of Defense, United States Navy

Department of Homeland Security, United States Coast Guard

Department of the Interior, Bureau of Safety and Environmental Enforcement

Department of the Interior, National Park Service

Department of the Interior, United States Fish and Wildlife Service

Department of Justice, Environment and Natural Resources Division

Department of State, Office of Ocean and Polar Affairs

Marine Mammal Commission

U.S. Agency for International Development

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I. EXECUTIVE SUMMARY

This Interagency Marine Debris Coordinating Committee (IMDCC) Progress Report provides an update on the activities Federal agencies have undertaken between October 2017 and September 2019 (Fiscal Years (FY) 2018 and 2019) to address marine debris, as mandated by the Marine Debris Act, 33 U.S.C. § 1951 et seq, as amended. The Marine Debris Act requires IMDCC to submit biennial progress reports that evaluate the United States' and international community's progress in meeting the purposes of the Marine Debris Act. The previous report covered the time span of January 2016 to December 2017. In order to better align with funding cycles, this report and future reports will provide updates according to FY, rather than calendar year.

This is the sixth progress report since the publication of the first Interagency Report on Marine Debris Sources, Impacts, Strategies, and Recommendations, submitted to Congress in August 2008. This progress report contains all of the information required by 33 U.S.C. § 1954(e) of the Marine Debris Act, entitled *Biennial Progress Reports*, including the following:

- Section III: the status of implementation of any recommendations and strategies of the Interagency Committee and analysis of their effectiveness;
- Section IV: a summary of the marine debris inventory to be maintained by the National Oceanic and Atmospheric Administration (NOAA);
- Section V: a review of the NOAA Marine Debris Program (MDP), including projects funded and accomplishments relating to the reduction and prevention of marine debris;
- Section VI: a review of U.S. Coast Guard programs and accomplishments relating to marine debris removal, including enforcement and compliance with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements; and
- Section VII: estimated Federal and non-Federal funding provided for marine debris and recommendations for priority funding needs.

This report also responds to two recommendations in the Government Accountability Office (GAO) Report, *Marine Debris: Interagency Committee Members Are Taking Action, but Additional Steps Could Enhance the Federal Response*, published in September 2019.¹

The GAO report recommends that the IMDCC should "... develop and implement a process to analyze the effectiveness of the interagency committee's recommendations and strategies and include the results in its biennial reports." It also recommends that the IMDCC should "... develop a process to identify recommendations for priority funding needs to address marine debris and include such recommendations in its biennial reports." These recommendations are addressed in Sections III and VII, respectively.

The appendices contain an overview of relevant Federal agency authorities and projects funded by the MDP.

¹ United States Government Accountability Office (2019). *Marine Debris: Interagency Committee Members Are Taking Action, but Additional Steps Could Enhance the Federal Response* (GAO-19-653). Washington, DC available at <https://www.gao.gov/assets/710/701694.pdf>.

II. INTRODUCTION

A. Overview of the Marine Debris Issue

Marine debris is one of the most pervasive global threats to the health of the ocean and our waterways and is an issue of growing local, regional, national, and international concern. Marine debris can injure or kill marine and coastal wildlife; damage and degrade habitats; interfere with navigational safety; cause economic loss to fishing, maritime industries, and coastal communities; and threaten human health and safety.

Marine debris is defined as “... 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 Great Lakes”.² Anything human-made – such as vessels, fishing gear, plastic bags, beverage bottles, and food wrappers – can become marine debris through dumping, improper waste management, transport through storm drains, and natural weather events.

Natural disasters, such as the 2011 Tōhoku earthquake and tsunami in Japan, and the 2018 Hurricanes Florence and Michael, and Typhoon Yutu, can generate large amounts of marine debris. While these major events call attention to the issue of marine debris, there is also an increasing recognition that marine debris is a persistent, everyday problem. Plastic pollution, one of the most pervasive types of marine debris, is drawing increasing public concern.

Plastic items are used in many aspects of daily life. Unfortunately, as society develops new uses for them, the variety and quantity of plastic pollution in the marine environment also increase dramatically. Plastic pollution is a very visible part of the marine debris problem, but many of its marine impacts are only starting to be understood. Research has revealed that plastic pollution, once in the marine environment, does not completely degrade. Instead, it breaks into smaller and smaller pieces. When plastics are less than 5 millimeters in size, they are called microplastics.

Research has also shown that plastic pollution debris is a potential vector for the transfer of persistent, bioaccumulative, and toxic pollutants (PBT) from the water to the food web, potentially creating a risk to marine species and human health.³ Questions, such as the potential impacts of PBTs on ocean health, are propelling new research on ocean plastic pollution, including microplastics and nanoplastics, which are smaller than microplastics.

A second highly visible and concerning form of marine debris is derelict fishing gear (DFG). It adversely impacts the marine environment by damaging marine habitats, entangling marine species, including seabirds and marine mammals, creating hazards to

² Marine Debris Act, 33 U.S.C. § 1956 (2012).

³ Rochman, C. M., Hoh, E., Kurobe, T., & Teh, Swee J. (2013). Ingested Plastic Transfers Hazardous Chemicals to Fish and Induces Hepatic Stress. *Nature, Scientific Reports* 3, 3263. doi:10.1038/srep03263

navigation, and “ghost fishing,” resulting in lost catch opportunities and economic losses for fishermen.⁴

Abandoned and derelict vessels (ADV) are a third highly visible and prevalent type of marine debris, with thousands of ADVs littering our Nation’s coastal waters. ADVs threaten our ocean, coasts, and waterways by obstructing navigational channels, causing harm to the environment and diminishing commercial and recreational activities.

From consumer items to ADVs, marine debris is polluting the global ocean and Great Lakes. The problem is substantial, but it is not unsolvable. Marine debris is preventable by increasing awareness of the problem, changing individuals’ behaviors, and improving waste-handling infrastructure.

The Federal Government has recognized that marine debris can be dealt with effectively through a comprehensive approach that is local in scale, global in scope, directed at source prevention, and designed to both educate and empower communities to take action. The Interagency Marine Debris Coordinating Committee (IMDCC) is a multiagency body tasked with ensuring that this comprehensive approach is implemented to address marine debris.

B. The Interagency Marine Debris Coordinating Committee

The IMDCC was established by Congress under the Marine Plastic Pollution Research and Control Act of 1987 and was re-established under the Marine Debris Act.⁵ The Save Our Seas Act of 2018 amended the membership of the IMDCC.⁶ The IMDCC is the interagency coordinating body responsible for addressing marine debris. The IMDCC consists of the following agencies, as designated in 33 U.S.C. 1954:

- NOAA;
- the Environmental Protection Agency;
- the United States Coast Guard;
- the United States Navy;
- the Department of State;
- the Department of Interior; and
- such other Federal agencies that have an interest in ocean issues or water pollution prevention and control as the Secretary of Commerce determines appropriate.

⁴ The term “ghost fishing” is defined as “the ability of fishing gear to continue fishing after all control of that gear is lost by the fisherman.” Smolowitz, R. J., Corps, L. N., and Center, N. F. (1978). Lobster, *Homarus americanus*, trap design and ghost fishing. *Marine Fisheries Review* 40, 2–8.

⁵ Marine Debris Act, 33 U.S.C. § 1951 et seq. (2006), as amended by Title VI, P.L. No. 112-213, Dec. 20, 2012, 126 Stat. 1576.

⁶ P.L. No. 115-265, Oct. 11, 2018, 132 Stat. 3742.

The IMDCC is primarily responsible for sharing information, assessing, and promoting best management practices, as well as coordinating interagency responses to marine debris. The IMDCC ensures coordination of Federal agency research priorities, monitoring techniques, educational programs, and regulatory actions. The IMDCC is also responsible for recommending priorities and strategies to identify, determine sources of, assess, reduce, and prevent marine debris, as well as mitigate its adverse impact on the economy of the United States, the marine environment, and navigation safety.

In 2008, the IMDCC developed a report to Congress titled, *Interagency Report on Marine Debris Sources, Impacts, Strategies, and Recommendations*, which identified the sources of marine debris; the ecological and economic impacts of marine debris; alternatives for reducing, mitigating, preventing, and controlling the harmful effects of marine debris; the social and economic costs and benefits of such alternatives, and recommendations to reduce marine debris both domestically and internationally. The 2008 report presented recommendations to guide the Federal Government's strategies with respect to the problems of persistent marine debris.

This report, like the five previous biennial IMDCC reports to Congress, provides status updates on the IMDCC Federal agency activities, including partnership activities, to implement the 2008 report recommendations. This report also addresses the reporting requirements outlined in the Marine Debris Act which includes: a summary of the marine debris inventory to be maintained by NOAA; a review of the NOAA MDP authorized by Section 3 of the Marine Debris Act, including projects funded and accomplishments relating to reduction and prevention of marine debris; a review of the U.S. Coast Guard (USCG) program and accomplishments relating to marine debris removal, including enforcement and compliance with MARPOL requirements; and estimated Federal and non-Federal funding provided for marine debris and recommendations for priority funding needs.

In the 2 years since the previous report, the IMDCC has worked to address the recommendations of the 2008 report, focusing on coordinating efforts on marine debris prevention, research and monitoring, and removal. The IMDCC has also addressed emergent marine debris issues, including evaluating economic costs of marine debris, emergency response planning, and region-specific marine debris issues and efforts. In addition, as attention to the issue of marine debris has increased, the IMDCC and its member agencies have increasingly become engaged in international coordination. On August 21, 2020, the IMDCC also finalized its revised Charter, which includes updates to the IMDCC process for membership, meetings, and other functions.⁷

III. IMPLEMENTATION OF IMDCC RECOMMENDATIONS AND STRATEGIES

⁷ IMDCC Charter (Aug. 21, 2020), *available at* https://marinedebris.noaa.gov/sites/default/files/Interagency_Marine_Debris_Coordinating_Committee_Charter_2020.pdf.

The 2008 *Interagency Report on Marine Debris Sources, Impacts, Strategies, and Recommendations* provided a detailed review of the problems associated with marine debris and laid out 25 recommendations intended to guide the Federal Government's strategies with respect to the problems of persistent marine debris. The recommendations were categorized into eight overarching topics: Education and Outreach, Legislation/Regulation/Policy, Incentive Programs, Enforcement, Cleanups, Research, Technology Development, and Fostering Coordination. The topics were organized into four themes: Prevention, Response to Debris Already in the Marine Environment, Research and Development, and Cross-theme Efforts to Foster Coordination. The following section includes the 2008 report recommendations and progress by the IMDCC agencies since the last report for each recommendation. The following section also includes information from Federal agencies that are not named member agencies listed in 33 U.S.C. § 1954, but that have been involved in relevant marine debris activities.

In response to the Government Accountability Office (GAO) Report #GAO-19-653, *Marine Debris: Interagency Committee Members are Taking Action, but Additional Steps Could Enhance the Federal Response*, the IMDCC analyzed the effectiveness of the interagency committee's recommendations and strategies in guiding Federal agency activities to address marine debris. A brief analysis of each recommendation's effectiveness is included below. Overall, the IMDCC has been effective in coordinating marine debris research and activities among Federal agencies. However, areas for improvement remain.

Measuring the effectiveness of Federal agency activities in reducing the impacts of marine debris is difficult. The IMDCC is doing everything possible to routinely evaluate the effectiveness of agency activities; individual agencies are expected to work toward implementing the 2008 recommendations in accordance with each agency's legal and programmatic authorities, mission priorities, and resource limitations, as well as assess the effectiveness of those activities according to each agency's criteria. Metrics are provided in each agency's responses below as available and appropriate.

The IMDCC has also reviewed the 2008 recommendations. The IMDCC acknowledges that the recommendations are more than a decade old, and it may be time to revisit the recommendations in order to more effectively coordinate the marine debris efforts of Federal agencies. During an update of the recommendations, the IMDCC may also be able to work with IMDCC committee members to identify specific common or easily translatable metrics to better monitor, evaluate, and report the results of collective efforts to address the complex facets of marine debris. This would further develop a process to analyze the effectiveness of the interagency committee's recommendations and strategies that could be implemented in future biennial reports.

A. Status of Activities Related to IMDCC Recommendations

Theme 1: Prevention

Topic 1. Education and Outreach

1.1: Federal agencies should demonstrate leadership by distributing educational materials to personnel on the sources and impacts of marine debris as well as methods for prevention, with the goal of reducing the Federal contribution to marine debris.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Bureau of Safety and Environmental Enforcement

The Bureau of Safety and Environmental Enforcement (BSEE) released a marine debris prevention training video on February 27, 2018. The video instructs offshore oil and gas workers to follow best practices for marine debris prevention. The video is a part of annual required training for all offshore oil and gas workers.

Department of State

The Department of State (DOS) developed an internal hub on marine debris and waste management in 2019 for embassy staff to utilize with educational material from across Federal agencies. The hub provides educational material to embassy environment officers to conduct outreach within and outside the embassy community. Many embassies also have embassy green teams that work to reduce the environmental footprint, including waste generation, of embassy communities stationed abroad. The Department has also launched widely successful campaigns consisting of a webinar series and waste management challenge that educated Department personnel on the U.S. strategy to combat marine debris and plastic pollution. The series harnessed the U.S. government interagency to discuss the magnitude and widespread impacts of the crisis, explained effective U.S. government policies and solutions, and introduced various interagency tools and resources to utilize U.S. expertise and environmental technology exports to tackle waste management deficiencies and make informed policy decisions.

National Oceanic and Atmospheric Administration

Within NOAA, the National Ocean Service (NOS) established the NOS Zero Waste Team in July 2019 to reduce the amount of waste, especially single-use items, which are generated in daily office operations and at NOS events. NOS created an action plan to reduce waste across the organization and encourage the participation of NOS staff. This initiative builds upon the success and expertise that the MDP developed while hosting the Sixth International Marine Debris Conference (6IMDC) in 2018. At this conference, single-use items were limited, excess food was composted and donated, and all remaining materials were recycled.

The MDP also creates educational materials on the sources and impacts of marine debris, as well as methods for prevention, that are available to Federal personnel over multiple channels, including social media, newsletters, blog posts, and website content. The MDP produces an annual marine debris calendar, composed of artwork from selected winners of the NOAA Marine Debris Art Contest. The calendars help raise awareness of the issue and are an effective outreach tool for staff within NOAA. For more information on these efforts, refer to Recommendation 1.2.

U.S. Army Corps of Engineers

Vessel waste management and preventing debris from entering the marine environment is through compliance with the Environmental Protection Agency's Vessel General Permit program (vessels 79 feet and greater in length) and Small Vessel General Permit program (vessels under 79 feet in length). These self-administering programs rely on adherence to best management practices and good housekeeping in day-to-day vessel operations.

U.S. Coast Guard

USCG is a Federal law enforcement agency and personnel are trained on the statutory and regulatory standards for marine debris disposal. USCG operates vessels, cutters, icebreakers, and small boats on waterways and seas throughout the world. The USCG is regulated by the Uniform National Discharge Standards, Section 312(n) of the Clean Water Act (CWA), applicable to military vessels. These discharge standards related to pollution and marine debris are integrated into USCG policy through Commandant Instruction Manual 16455.1. To implement the policy, USCG requires each vessel to adhere to a Unit Environmental Guide (Vessel Environmental Manual), which instructs on the proper handling of solid wastes and training requirements of COMDTINST 16455.1. In accordance with the instruction, each vessel maintains a Garbage Management Plan and trains personnel to properly manage waste. Waste handling capacities and upgrades to meet new regulations are implemented at a vessel class' midlife sustainment project ensuring that vessels are equipped and capable of meeting current standards of waste management. USCG continues to upgrade and improve the waste handling capabilities as cutters age by updating trash compactors on smaller cutters, installing improved pulpers on medium cutters, and upgrading with the latest thermal methods of waste treatment on the largest cutters. USCG units continually inspect and enforce internal waste management requirements to prevent the introduction of marine debris.

During the 2018-2019 reporting period, USCG continued efforts to demonstrate leadership within the service by hosting Headquarters-level workshops on its in-house pollution prevention, waste reduction, and recycling programs. These programs help reduce the impacts of land-based sources (e.g., landfill) of marine debris, focusing on reduction of single-use plastic disposables and packaging for food service.

USCG operates a shipyard facility in Baltimore, Maryland, where the agency voluntarily maintains International Organization for Standardization (ISO) 14001 certification for environmental management. The certification has prompted facility improvements, pollution prevention, stormwater management, and related training. Since 2018, projects to restore 1.02 acres or 44,000 square feet of impervious area back to pervious surfaces now reduces pollutants entering into the Chesapeake Bay in stormwater runoff. In 2018 and 2019, Coast Guard Yard diverted 1,346,000 pounds and 1,272,000 pounds, respectively, of recyclable material in the solid waste stream from disposal at a landfill. In addition, the USCG Shipyard has sponsored and coordinated targeted efforts to remove debris from the local watershed and shoreline.

U.S. Navy

The U.S. Navy has developed fleet training aides to instruct sailors on the proper handling of solid wastes and the correct operation and maintenance of waste handling equipment.

1.2: Federal agencies should support public awareness campaigns by providing technical expertise and educational materials and by encouraging private sector participation, when appropriate. These campaigns may target specific threats and audiences to address the diversity of the marine debris issue.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Bureau of Safety and Environmental Enforcement

The Bureau of Safety and Environmental Enforcement (BSEE) Marine Trash and Debris Prevention program requires private sector companies working in offshore oil and gas to conduct annual training and to follow best practices guidelines. BSEE produced a training video in Spanish and English to support this requirement.

Department of State

The U.S. Department of State (DOS) sponsored a renowned American marine debris expert, Dr. Jenna Jambeck of the University of Georgia, as a U.S. Embassy Speaker. With Embassy support, Dr. Jambeck met in FY 2018 and FY2019 with students, academia, civil society, and government officials in South Africa, Japan, Vietnam, Philippines, and Indonesia. DOS initiated a FY 2019 outreach campaign to provide educational materials on environmentally sound waste management techniques. In addition, U.S. Embassy Public Affairs sections regularly conduct outreach events to educate the host country's public on marine debris, including public viewings of documentaries and discussions. The Department also regularly constructs far-reaching outreach materials, such as press guidance and social media toolkits, to share Department efforts and resources and engage embassies and consulates abroad.

Environmental Protection Agency

The Environmental Protection Agency (EPA) established the national Trash Free Waters (TFW) program to encourage collaborative actions by public and private stakeholders to prevent trash from entering water. EPA provides information online to inform the public about aquatic trash and provide information on actions that the public can take to reduce the loadings of trash into waterways. The TFW website provides information on both the TFW program itself, and on the issue of aquatic trash generally. Additionally, the tri-annual TFW newsletter, *The Flow*, is sent to an increasingly large number of subscribers. The Flow describes local, state, regional, and international TFW efforts that have been successful, so that others may identify opportunities to replicate these approaches.

Many individual, place-based projects address educating the public on the sources and impacts of aquatic trash, as well as methods of prevention, with respect to aquatic trash,

much of which ends up in our ocean. Below are three examples of individual education projects from the TFW program.

In 2019, members of the Region 1 TFW team shared educational information with a local stakeholder, Kingdom Marine Services, to help disseminate how marina patrons can help reduce plastic wastes in waterways.

The Lower Columbia River Estuary, one of 28 National Estuary Programs, which are place-based programs that frequently address trash as part of their management plans and that are funded primarily by EPA, was a significant partner in Trash for Peace's Sustainability Education Program, which was funded by an EPA Environmental Justice grant. The initiative fostered environmental stewardship through solid waste disposal education for youth at various affordable housing properties in Portland, Oregon.

The TFW program also supports many projects with public awareness components, including some projects with private sector partnerships. Several examples of projects are provided below.

Ongoing trash capture efforts in Atlanta's Proctor Creek watershed serve as an example of interagency collaboration and private sector engagement to advance clean, trash-free communities. Various trash capture devices such as "litter gitters," portable in-stream trash capture devices, have been installed both in the main spine of Proctor Creek and in several tributaries. They were placed in accessible and highly visible areas close to elementary schools, greenways, and pedestrian walking bridges, where people can view first-hand the amount of in-stream trash being collected, in order to motivate behavior change. The TFW program has played a critical role in bringing stakeholders and potential funders to the table to identify needs for source reduction projects and identify funding resources for the installation and maintenance of trash traps in Proctor Creek. In 2019, partners held a kickoff event for the Coca-Cola "World Without Waste" campaign in Proctor Creek, showcasing the installation of additional litter capture technologies in the watershed. Thanks in part to those initial funding conversations, Coca-Cola decided to invest \$350,000 in six locations within the Proctor Creek watershed, with the goal of collecting and reducing 80 percent of downstream litter in the creek. Educational signage, yet to be placed, will inform visitors about the litter catchment systems and provide education on how to reduce litter by recycling and disposing of trash in receptacles.

In late 2018, the Mid-America Regional Council and Bridging the Gap, with support from the EPA, collected over 7,800 pounds of litter in Kansas City, Missouri, through six volunteer cleanup workdays. Project partners complemented remediation efforts with presentations to volunteers explaining how litter makes its way into storm drains by rain and snow melt, is carried down the Missouri and Mississippi Rivers, and ultimately flows into the Gulf of Mexico. In addition to offering educational outreach, partners held one-on-one engagements with 47 local businesses, informing them how litter impacts our waterways, and how they can be part of the solution by implementing simple changes in their workplaces.

Yet another example of an EPA-supported awareness campaign is the Cafeteria Culture “Community Arts and Media for Trash Free Waters” project. This effort was funded by EPA’s Region 2 (New York) office and is a school-community partnership and demonstration project in three low-income, urban communities of color. The project’s goals included reducing plastic street litter and increasing recycling via youth-led, community-designed education and engagement campaigns that focus on the negative environmental and health impacts of land-based plastic marine pollution. Videos created through the project are promoted citywide and nationally via Cafeteria Culture’s YouTube channel, inspiring other low-income, public housing, and immigrant communities to replicate similar initiatives.

The Town of Dauphin Island and Mobile Bay National Estuary Program partnered to raise awareness about litter blowing from truck beds and boats, starting with Alabama’s Deep Sea Fishing Rodeo during the summer of 2018. The “Trash Blows” campaign encourages anglers to stow their truck bed and boat trash to keep waterways clean.

In 2018, the Partnership for the Delaware Estuary and Philadelphia Water Department collaborated to provide community groups and municipalities with educational supplies to combat stormwater runoff pollution. The goal of the initiative was to enhance awareness around the fact that local storm drains drain into the Delaware Estuary. Instruction manuals and educational tip cards were distributed to interested parties to convey how to coordinate employees and volunteers in the effort. Adhesive “No Dumping” storm drain medallions were shared to mark storm drains and help spread the word about water pollution.

EPA’s Long Island Sound Study provided financial support in 2018 to implement an educational campaign, “Going Strawless for Sea Turtles: Educating to Protect Marine Life and Eliminate Single-use Plastics.” Citizens Campaign Fund for the Environment will use comprehensive public education, social marketing, and hands-on activities to reduce the use of plastic polluting Long Island Sound beaches, bays, and harbors in Nassau and Suffolk counties in New York.

National Park Service

Acadia National Park conducts marine debris talks as part of boat cruises when encountering issues (e.g., wildlife entangled in marine debris, including turtles, whales dragging ropes, buoys, etc.). Their Schoodic Education Adventure Residential Program’s tidepool program, with approximately 50 programs each year, picks up trash and makes a point of talking about the impacts of the trash that participants see and remove.

Acadia National Park also runs an Artist in Residence program. The current Artist in Residence is Mariah Reading, an eco-artist and strong advocate for the existence, preservation, and accessibility of the national parks. Mariah has developed a zero-waste practice (<https://www.nps.gov/acad/getinvolved/air-reading.htm>) that involves creating

canvases from debris found through national parks and protected landscape environments.⁸

Acadia National Park also staffed and created educational exhibits and events, including:

- Staffed education stations and exhibits at four spring festivals, reaching approximately 440 people;
- Created education exhibits about ocean trash for the Eek of Ecology festival and had the “Most Dangerous Thing in the Sea” plastic trash costume on an interpreter who discussed the impact of marine debris on wildlife and humans, reaching approximately 235 people; and
- Weekly Jr. Ranger stations about Leave No Trace and Marine Pollution, mostly focused on plastics, reaching approximately 800 people.

The topic of marine debris, including source and impacts, has been incorporated into Interpretive ranger-led talks in Alaska, such as at Kenai Fjords National Park. The National Park Service (NPS) has developed a marine debris curriculum for rural schools in Alaska and has distributed that curriculum to district schools within the state. NPS has also participated in marine debris forums at public events.

As part of the Every Kid Outdoors program, Gateway National Recreation Area runs the “Coastal Habitat Heroes” program with Jamaica Bay-Rockaway Parks Conservancy, where students learn about threats posed by marine debris, single-use plastics, and microplastics in waterways.

The Pacific Islands Coral Reef Program sponsored four interns to assist parks in producing materials related to coral reef conservation with a strong message about marine debris. The interns also distributed materials to the local communities at events. The short film they produced is found on YouTube (<https://www.youtube.com/watch?v=77lr8lQeQKs>) and available to the public.⁹

The San Francisco Surfrider Foundation is working with Golden Gate National Recreation Area on the “Hold on to your Butt” campaign. The campaign has installed cigarette butt cans throughout the park and San Francisco and will provide messaging in five different languages. The campaign is funded by the NOAA MDP.

National Oceanic and Atmospheric Administration

The MDP takes an “all hands” approach to education, and staff members across the nation partner with Federal, state, local agencies, and non-governmental organizations (NGOs) to educate the public about marine debris in order to prevent it from entering the marine environment and Great Lakes. In FY 2018 – FY2019, the MDP conducted education and outreach across the country and reached 25,573 students and teachers and 18,300 members of the public.

⁸ <https://www.nps.gov/acad/getinvolved/air-reading.htm>

⁹ <https://www.youtube.com/watch?v=77lr8lQeQKs>

The MDP engages students and the public with a robust set of outreach and education tools, which include: an annual K-8th grade art contest, educational displays in visitor centers, in person presentations and workshops, five monthly and one quarterly newsletter, a strong web presence incorporating social media, a dedicated blog, and multimedia that includes videos and images. In FY 2018 – FY 2019, the MDP published 139 blog posts with 97,334 views and the website had 496,606 sessions/visitors.

The MDP spearheads nationally competitive funding opportunities for marine debris removal, research, and prevention projects. Many of the prevention projects include public awareness campaigns to actively engage and educate a target audience in hands-on programs designed to raise awareness, reduce barriers to marine debris prevention (e.g., lack of access to waste receptacles or alternatives to single-use items), and encourage and support changes in behaviors to ensure long-term prevention of marine debris.

The MDP funded the Sea Education Association (SEA) to work with undergraduate SEA Semester students and local middle school students in Falmouth, Massachusetts, to create a campaign to educate their community about marine debris and encourage businesses and consumers to reduce their use of single-use plastic items. After learning about marine debris and conducting social science research, the students created a campaign, “Trash Shouldn’t Splash,” designed to change ingrained habits and share messages with restaurants and their customers. Ten restaurants in Woods Hole committed to reducing single-use plastics. The campaign reached more than 1,000 K-12 students through classroom visits and art contests, and more than 135 SEA undergraduate students have participated. Although the grant closed in FY 2018, the project continues to grow, with 44 toolkit downloads and 2,500 visits to the Trash Shouldn’t Splash website from around the world.

In FY 2019, Trash Free Maryland, together with the City of Baltimore, the Maryland Port Administration, and multiple nonprofit partners, completed a multi-year social marketing campaign to reduce land-based litter in Baltimore, Maryland. Funding was provided through a MDP prevention grant. The “Less Litter, B-More Initiative” promoted behavior change programming to reduce littering and engaged people through education and outreach activities. The project involved volunteers in cleanup activities and provided supplies to individual and small-scale cleanup efforts.

For more information on the MDP’s education and outreach priorities, refer to Section V. B.

U.S. Agency for International Development

The U.S. Agency for International Development’s (USAID) Municipal Waste Recycling Program (MWRP) has supported 30 locally-led projects with innovative and sustainable solutions to reducing ocean plastic waste in four out of the top five contributing countries for ocean plastic pollution: Indonesia, Philippines, Sri Lanka, and Vietnam. The majority of these projects have included a public awareness component, targeting audiences as diverse as fishing boat owners, women’s organizations, youth, school children, hotel and restaurant owners, large and small scale food stores, and independent

waste collectors. To date, grantees have engaged more than 90,000 youth to prevent ocean plastic pollution and trained 150,000 households and establishments to support recycling through practices such as segregation of waste.

U.S. Coast Guard

USCG has the lead regulatory role in preventing dumping in U.S. waters and enforcement of MARPOL Annex V, addressing garbage and debris by commercial vessels. USCG enforces MARPOL Annex V requirements in accordance with U.S. domestic enforcement regulations in Title 33 of the Code of Federal Regulations Sections 151 and 158. Enforcement is carried out by USCG Sector and District Offices located nationwide.

In June 2019, the USCG Auxiliary Beach Clean-Up program guide was approved and posted as an authorized Auxiliary activity. Now an authorized activity, Auxiliarists are able to engage in beach clean-ups under assignment to duty. Currently, there is no designated activity code enabling the USCG to track the amount of Beach Clean-Up activity.

USCG continues to work with the North American Marine Environment Protection Association (NAMEPA) under a 2012 Memorandum of Understanding to assist in producing specific marine safety and pollution prevention outreach literature, available in both English and Spanish that NAMEPA distributes through the USCG Auxiliary and its own website.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) provides education and outreach opportunities to the public in a variety of ways. At the local level, marine debris issues are presented via interpretive panels and talks, and fishing line recycling stations on National Wildlife Refuges. At the regional and national level, marine debris cleanup and prevention are frequent topics for blogs and articles shared through social media.

U.S. Navy

The Navy, led by U.S. Fleet Forces Command, engages the public regularly with its “Stewards of the Sea” environmental outreach program. Events include Fleet Weeks, Navy Weeks, and Air Shows, as well as displays at environmental seminars and other venues. As part of the environmental outreach program, the Navy has handouts and informational material available for distribution to the public, and subject matter experts available to discuss Navy at-sea waste disposal procedures in conformity with the Act to Prevent Pollution from Ships, including separation and processing of all plastic products at sea, as well as retention of plastic aboard ship until it is able to be properly disposed of ashore.

1.3: Federal agencies should engage and partner with state, local, tribal and non-governmental entities to support coordinated events, such as Earth Day, the International Coastal Cleanup, and other activities that have relevance to marine debris. These events should include nationwide educational and media outreach

efforts to enhance awareness of sources and impacts of marine debris and to provide recommendations regarding specific actions that can be taken to prevent or reduce marine debris.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

In FY 2018 and FY 2019, DOS continued to support the Ocean Conservancy's International Coastal Cleanup activities. DOS highlighted the event via social media and promoted the initiative through DOS alumni and outreach materials. Individual embassies also sponsored coastal cleanups on Earth Day around the world. In FY 2018, Embassy Bangkok worked closely with the hospitality industry in Phuket, Thailand, towards a waste reduction program targeting hotels and other tourist accommodations.

Environmental Protection Agency

EPA encourages participation in existing coordinated events related to marine debris as well as supporting new efforts. In FY 2019, the TFW program helped support cleanup efforts across the nation, including an Earth Day cleanup along the South Platte River in Denver, Colorado, and volunteer workdays called "Give a Day for the Bay" in Florida's Tampa Bay. Another example is the Massachusetts Coastsweep, which TFW partners, including the Buzzards Bay National Estuary Program and the Buzzards Bay Coalition, participated in and helped facilitate. Coastsweep is an annual statewide beach cleanup, which is part of an international campaign organized by The Ocean Conservancy. Participants from all over the world collect marine debris and record the types of trash they collect during Coastsweep to inform research and decision making. The 2018 Massachusetts Coastsweep engaged thousands of volunteers.

The Trash Free NYC Bag Challenge initiative, funded by a Region 2 TFW grant, a one-off grant program specifically for New York, New Jersey, and Puerto Rico, aims to reduce single-use bag distribution by 5 percent by partnering with supermarkets and grocery stores. This project is managed by the New York City Department of Environmental Protection and uses a combination of public outreach, market-based research, and creative messaging to educate the supermarket industry and the communities they serve on how their operations and decisions directly impact surrounding waterbodies with respect to plastic trash. The challenge ultimately aims to reduce the pollution of waterbodies by creating a lasting behavior shift in how supermarkets operate and interact with customers, ensuring the long-term preservation of New York City waterbodies.

National Park Service

Colonial National Historical Park runs "Clean the Bay Day" events in the Chesapeake, with approximately 80-100 volunteers every year, in partnership with Scouts, private organizations, and Anheuser Busch.

Boston Harbor Islands National Recreation Area partners with non-profit Boston Harbor Now and Massachusetts State Parks to co-lead the International Coastsweep Event, a large volunteer-based beach cleanup, annually. Boston Harbor Islands National Recreation Area also participates in and hosts approximately 60 volunteers per year from Blue Cross/Blue Shield on Peddocks Island.

As part of the International Coastal Cleanup/National Public Lands Day, Assateague Island National Seashore works with the Assateague Coastal Trust to coordinate a coastal cleanup at Assateague Island (the 2018 event had 350 volunteers) where Assateague Coastal Trust staff also talk about their “Trash Free Assateague” program and its unique approach to addressing the waste and plastic issues facing our societies and the planet on which they depend. Trash Free Assateague also has an event at Assateague Island National Seashore on Earth Day and many other scheduled cleanup events.

Various marine debris projects in Biscayne National Park removed a total of 36,414 pounds of debris in FY 2018 and 83,296 pounds of debris in FY 2019. Debris was removed from both coastal and marine sites. Coastal cleanup highlights included the use of 470 volunteers to remove marine from and restore sea turtle nesting habitat. Highlights from the underwater marine debris efforts during this period include the removal of 443 anchors from park reefs, as well as the removal of at least 12,241 meters of trap line and 5,736 meters of anchor line that was littering park reefs (not all removed materials were measured).

Kenai Fjords National Park has supported multiple marine debris clean-ups on multiple beaches within the park. These annual clean-up events are done in coordination with a local non-profit focused on maintaining remote beaches subject to high debris loads.

National Oceanic and Atmospheric Administration

The MDP contributes funding annually to support the Ocean Conservancy’s International Coastal Cleanup, the largest single-day volunteer cleanup event.

In FY 2018, NOAA, alongside other partners, sponsored the Ocean Plastics Lab, an international outdoor, interactive, and free exhibit, composed of four shipping containers that highlight the global problem of ocean plastic pollution during National Ocean Month. This exhibit was created by the German Marine Research Consortium and is supported by Germany’s Federal Ministry of Education and Research and the European Commission. The educational exhibit on marine debris began its tour in Turin, Italy, and included a stop in Washington, DC, on the National Mall. The Lab features NOAA’s Marine Debris Tracker App, which serves as an easy-to-use and simple tool for marine debris data collection. While in the Nation’s capital, an estimated 20,000 people visited the exhibit, learning about marine debris and science-based solutions.

In FY 2019, the MDP partnered with Environment for the Americas to raise awareness on the importance of migratory bird species, and the ways we can protect birds from the threat of plastic pollution and marine debris, as part of World Migratory Bird Day. The 2019 theme for World Migratory Bird Day was “Protect Birds: Be the Solution to Plastic

Pollution!” and put the spotlight on the impact of plastic pollution on migratory birds and their habitats. Events were coordinated across the Americas, including marine debris cleanups and educational activities.

U.S. Army Corps of Engineers

The agency as a whole participates in Earth Day activities with U.S. Army Corps of Engineers (USACE) employees joining in beach cleanup activities and other community events.

U.S. Coast Guard

USCG engages with state, local, and NGO entities at the district and sector levels, participating in harbor safety and pollution prevention efforts around the country.

USCG is a member of the Arctic Council¹⁰ working group, Protection of the Arctic Marine Environment (PAME). This working group has been instrumental in the development of a database called the Arctic Ship Data System (ASTD). While this database does not currently have a marine litter and plastics layer in operation, it is undergoing a phased development. The item has been put before the PAME plenary as a deliverable and is expected to be a topic of discussion and further decision at the PAME II 2020 meeting scheduled for September 22, 2020 in Anchorage, Alaska. Nonetheless, the ASTD gained national attention in the September 2019 issue of National Geographic Magazine. The article discusses the consequences of the Arctic warming and has multiple Arctic-related stories. One article focusing on Arctic shipping, utilizes data from the ASTD database. PAME worked closely with National Geographic in utilizing the data for the issue.¹¹

U.S. Fish and Wildlife Service

Every September, dozens of coastal National Wildlife Refuges and refuge friends groups organize their local communities to participate in the International Coastal Cleanup. Refuge visitor services staff use these cleanup events as opportunities to also provide an educational experience for the public about the threats that marine debris poses to wildlife.

Hundreds of hours of staff and volunteer time are spent collecting marine debris on Pacific refuges, including Palmyra Atoll, Midway Atoll, Rose Atoll, Johnston Atoll, Guam, Hawaiian Islands, and James Campbell National Wildlife Refuges.

Topic 2. Legislation/Regulation/Policy

2.1: The IMDCC should review the findings from the National Academy of Sciences study that will assess the effectiveness of international and national measures to prevent and reduce marine debris and its impacts, and federal agencies should take action, as appropriate.

¹⁰ The United States is a participant in the Arctic Council, which is an intergovernmental forum promoting cooperation in the Arctic. <https://arctic-council.org/en/>.

¹¹ <https://www.pame.is/shortcode/blog/item/71-national-geographic-utilizes-astd-data-in-arctic-shipping-coverage>

The IMDCC has completed this recommendation. The IMDCC has reviewed the findings from the 2009 National Academy of Sciences study, “Tackling Marine Debris in the 21st Century.”¹² The study identified four overarching areas in which action was needed: 1) marine debris management, leadership, and coordination; 2) information and metrics with which to assess the effectiveness of current measures or efficiently direct future efforts; 3) port reception facilities for shoreside disposal; and 4) the distinct aspects of managing fishing gear as a source of marine debris. Federal agencies continue to take action as appropriate to prevent and reduce marine debris and its impacts, as documented in other sections of this report.

2.2: Federal agencies should seek ways to strengthen and enhance their ability to fulfill both regulatory and non-regulatory mandates for marine debris prevention, where appropriate. Table 2, which lists Federal marine debris related authorities, may be used for review and assessment of existing authorities.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Bureau of Safety and Environmental Enforcement

BSEE formed a risk-based approach to enhance offshore marine debris inspections on oil and gas facilities in the Gulf of Mexico.

Department of State

DOS worked closely with American industry and NGO partners to focus attention on combating marine debris using environmentally sound waste management best practices, innovation, and outreach in numerous multilateral fora and through bilateral engagement during FY 2018 – FY 2019. The United States participated in the UN Environment Assembly (UNEA) Ad hoc open-ended expert group on marine litter and microplastics that developed resources to support countries in taking action to address marine plastic litter and will engage in discussion at the fifth UNEA meeting about a global agreement to address plastic pollution and marine debris. The United States led the endorsement from Asia Pacific Economic Cooperation (APEC) members for a revision to a 2009 report on the direct economic costs to APEC economies due to marine debris. The 2020 report revises estimates of the direct costs of marine debris to member economies to support arguments to strengthen regulatory and non-regulatory actions.¹³ DOS also developed a marine debris management and innovation sub-fund and contributed substantially to this fund in FY 2019. The fund will serve as a dedicated resource for APEC projects aiming to tackle the marine debris problem. DOS continues to engage major source countries in Southeast Asia to encourage policy changes needed to prevent and reduce marine debris. DOS engages in the Basel Convention as a non-Party observer and participates in the Convention’s Plastic Waste Partnership to help countries improve their capacity for environmentally sound management of plastic waste and scrap.

¹² <https://www.nap.edu/catalog/12486/tackling-marine-debris-in-the-21st-century>

¹³ <https://www.apec.org/Publications/2020/03/Update-of-2009-APEC-Report-on-Economic-Costs-of-Marine-Debris-to-APEC-Economies>

Environmental Protection Agency

The TFW program has particularly focused on the stormwater nexus for trash in recent years, and in FY 2019 started a Trash Compendium to address trash through the National Pollution Discharge Elimination System program, using municipal and industrial stormwater permits as a mechanism to address trash. At the time of this report, the Compendium was not yet published. Impaired waterbody listings/Total Maximum Daily Loads (TMDL) pursuant to CWA Section 303(d) are tools being used by a small number of states to address trash – this tool can help spur action through permitting, watershed planning, or other means that otherwise would not happen.

National Oceanic and Atmospheric Administration

The Marine Debris Act established 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, the marine environment, and navigation safety. As a non-regulatory program, the MDP works cooperatively and collaboratively with multiple partners to fulfill and enhance its prevention efforts. To learn more about the MDP’s prevention efforts, see Section V. B.

U.S. Coast Guard

USCG enforces MARPOL Annex V requirements in accordance with U.S. domestic enforcement regulations in Title 33 of the Code of Federal Regulations Sections 151 and 158. Enforcement is carried out by USCG Sector and District Offices located nationwide. For detailed enforcement data, refer to Appendix C.

U.S. Fish and Wildlife Service

USFWS Deputy Director Stephen Guertin provided testimony to the House Committee on Appropriations Subcommittee on Interior, Environment, and Related Agencies in 2019. The hearing was entitled “Marine Debris: Impacts on Ecosystems and Species.” Mr. Guertin’s testimony focused on the USFWS’ role in addressing the threat of marine debris with current appropriations. The testimony is available online.¹⁴

U.S. Navy

The Navy continued the process of upgrading the fleet’s large pulpsters to improve performance and facilitate ease of maintenance. Similar planned upgrades to shipboard plastic waste processing equipment are under development. The Navy continued with investigations of technologies including compaction, conversion, and thermal destruction to enable warships to achieve zero discharge of metal, paper, and cardboard waste in accordance with new domestic and international discharge regulations.

2.3: The IMDCC should coordinate a correspondence group of state, local, and tribal governments to determine the marine debris-related authorities and policies at those levels, including both those that address land-based sources of marine debris and those that address ocean-based sources. The correspondence group will be an important

¹⁴ <https://appropriations.house.gov/events/hearings/marine-debris-impacts-on-ecosystems-and-species>

component in the IMDCC's gap analysis of regulatory and non-regulatory authorities that can be used to promote marine debris prevention.

The IMDCC has not coordinated a correspondence group of state, local, and tribal governments to determine the marine debris-related authorities and policies at those levels. However, several IMDCC member agencies have undertaken various efforts to understand regulatory and non-regulatory authorities related to marine debris.

Environmental Protection Agency

As appropriate, EPA local projects look at authorities and policies at the state and local level. Furthermore, in 2016 the TFW program published a document specific to the Gulf states (Alabama, Florida, Mississippi, Louisiana, and Texas) describing state and local policies and programs that prevent or reduce aquatic trash, called Atlas of Gulf States: Litter Control Policy and Programs.

National Oceanic and Atmospheric Administration

The MDP works with state and local governments to identify authorities and policies addressing DFG and ADVs. The removal of this debris often falls under state policies, which can vary greatly state-by-state.

ADV's negatively impact marine waterways and communities and present a challenge to state and local coastal managers. In an effort to clarify the roles of Federal agencies in addressing ADVs, state laws and regulations, and state ADV programs, the MDP launched an ADV InfoHub¹⁵ in November 2015. During FY 2018 and FY 2019, the ADV InfoHub provided relevant information with Federal, state, and local partners. The Canadian Coast Guard has also used the ADV InfoHub as they form a Canada-wide program to address ADVs.

The MDP facilitates response planning efforts in coastal states. Through a highly collaborative process with local, state, and Federal agencies, marine debris emergency response guide documents are being developed, aimed at improving preparedness and facilitating a coordinated, well-managed, and immediate response to acute waterway debris incidents.¹⁶ These efforts work to outline existing response structures at the local, state, and Federal levels, capturing all relevant responsibilities and existing procedures into one guidance document for easy reference.

U.S. Coast Guard

USCG has authority to reduce marine debris pursuant to the Act to Prevent Pollution from Ships (33 U.S.C. 33), the Marine Debris Act (33 U.S.C. 33a), and the enforcement regulations in the Code of Federal Regulations, Title 33. These domestic laws include the provisions of MARPOL Annex V, requiring USCG oversight of vessels and port facilities. Responsibilities are placed on vessel operators to minimize debris and on port facilities to provide adequate waste reception facilities. USCG sector and district offices, with the support of Hearing Officers and the Department of Justice, implement

¹⁵ <https://marinedebris.noaa.gov/discover-issue/types-and-sources/abandoned-and-derelict-vessels-info-hub>

¹⁶ <https://marinedebris.noaa.gov/emergency-response/marine-debris-emergency-response-guides>

enforcement actions by issuing deficiencies, citations, and penalties in accordance with USCG authority in 33 CFR 151 and 33 U.S.C. 1908(b)(1).

2.4: Federal agencies, coordinating through the IMDCC, should review existing international policies and strategies regarding marine debris from both land-based and ocean-based sources, and develop a white paper outlining possible policies or actions for consideration by the United States.

This recommendation was effective in guiding Federal agency efforts to address marine debris. The IMDCC did not develop the white paper recommended but has pursued other efforts to review existing international policies and strategies in order to meet the intent of the recommendation.

Department of State

The Department leads and coordinates efforts to implement the U.S. policy on international cooperation to combat marine debris.

DOS, working with interagency partners, has developed several internal strategy documents on how to address marine debris through diplomatic and programmatic engagements. DOS will continue to work with working with interagency partners, to develop engagement strategies, policies, and actions to be taken internationally.

National Oceanic and Atmospheric Administration

The MDP plays an important role in providing global leadership on the issue of marine debris from both land-based and ocean-based sources. There are many international initiatives ongoing to understand and combat the issue of marine debris and the MDP provides constructive input to some of these efforts. The MDP works closely with DOS and other U.S. national agencies to support U.S. Government engagement in many international fora that are addressing this pressing issue. The IMDCC serves as an important forum to share U.S. Government policies and strategies on international marine debris issues.

The MDP provides its experience to guide leading global partnerships that are advancing work to reduce marine debris internationally. MDP staff also engaged directly with foreign governments to offer its insights and experience to apply in other countries. For more information on the MDP's international activities, refer to Section V. G.

U.S. Coast Guard

In 2018-2019, the USCG continued to review and assess its role in the development of international regulatory schemes and in implementing those regulations in our national legislation and regulatory framework. The January 1, 2013, amendments to MARPOL Annex V prohibit the discharge of most Annex V wastes (all of which would contribute to marine debris), with very few exceptions. Implementing regulations, under the authorities in the Act to Prevent Pollution from Ships (APPS, 33 U.S.C. § 1901 et seq.), are contained in 33 CFR Part 151 and 33 CFR Part 158. Consequently, the release of debris, garbage, and trash are violations of MARPOL Annex V, as well as the U.S. Code of Federal Regulations (CFR), Title 33 Sections 151.51–151.77. USCG continues to

assess the effectiveness of its MARPOL programs and mandates on reducing pollution from ships in compliance with the near zero discharge restriction imposed by MARPOL under U.S. regulations.

USCG continues to support NOAA, the lead U.S. representative, in pursuing the goals of the London Convention, which has called for further actions to prevent and significantly reduce marine debris, including plastics and microplastics. The Parties to the London Convention and the 1996 Protocol have identified that source control and best practices are important elements in the effort to reduce abandoned or drifting fish aggregating devices, as well as polystyrene and plastic foam buoys used in aquaculture. While the Strategic Plan for the London Convention is working to address the various sources of marine pollution, some of the international rules and standards remain of a non-legally binding nature.

Topic 3. Incentive Programs

3.1: Federal agencies should support voluntary, incentive-based programs that encourage communities to adopt environmentally responsible practices. Examples may include Heal the Bay's "A Day Without a Bag" Program (a southern California non-profit organization) and the Clean Marina Program, an initiative involving Federal agencies and state governments.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

The Eco-Capitals Forum, created by DOS as a means to work with foreign embassies in Washington, DC to exchange best practices on sustainability within operations, including improving waste management to reduce the presence of marine debris, has over 100 foreign embassies signed onto an agreement with the DC Mayor to support local environmental goals. A key example of success is when DOS partnered with the Embassy of France and the Chesapeake Bay Foundation to develop one of the District's largest green roofs on the Embassy of France's Chancery in an effort to support the DC's goals of addressing waste water run-off and preserving the Chesapeake Bay. The Forum also worked with foreign embassies and had representatives from China, Costa Rica, Finland, Germany, Indonesia, Iraq, Malta, Pakistan, Portugal, Slovenia, Spain, Switzerland and the United Arab Emirates, as well as the European Union and the World Bank grow and plant seagrass along the Potomac to support the Chesapeake Bay restoration. The Forum also identified a Maryland industrial composting facility and organized a tour for Forum members to encourage improved waste management for their National Capital Region facilities. The Eco-Capitals Forum has been so successful that foreign government have set up chapters in their own countries including France, Italy, and Thailand.

Environmental Protection Agency

The TFW program has supported and/or developed many voluntary projects that seek to motivate citizens, businesses, and state and local governments to prevent loadings of land-based trash into water more effectively.

One example of a voluntary project used to encourage environmentally responsible practices is the “Don’t Trash Long Island Sound” campaign funded by the EPA’s Long Island Sound Study. The primary campaign message is to “Break the Single-Use Plastic Habit” in order to protect Long Island Sound wildlife. Thousands of campaign stickers depicting native watershed species were shared with the public to boost awareness and encourage behavior change. Residents used the #DontTrashLISound hashtag on social media, where platforms generated 135,000 Facebook and Twitter impressions, and leveraged a cleanup event to promote awareness of the issue.

The TFW program also supported a Philadelphia Water Department study, which addressed litter hotspots through art, community engagement, and infrastructure improvements. The project engaged targeted communities on the impact of litter in their local waterways by developing a service-learning oriented engagement program. Physical improvements, such as lidded trash receptacles, were also incorporated in the project’s scope. In 2019, a ribbon cutting press event was held to unveil one part of the initiative, the “Philadelphia Community Cans Project.” This aspect of the Philadelphia Hotspots effort brought together local community members to paint 20 trash cans with bright colors and positive messaging to encourage proper disposal of waste. Studies have shown that community pride and strategic siting of public trash bins are effective ways to reduce littering.

The TFW program also provided assistance to the Piscataqua Region Estuaries Partnership (a National Estuary Program) for the “Trash Free Piscataqua” initiative. Individuals and small groups, such as local watershed organizations were interviewed about policies, programs, technologies, and other efforts to mitigate trash loadings into local waterways and the ocean. Workgroups worked on three identified priority areas to develop voluntary actions to encourage communities to adopt environmentally responsible practices.

National Park Service

San Francisco Surfrider Foundation is working with Golden Gate National Recreation Area on the “Hold on to your Butt” campaign. The campaign has installed cigarette butt cans throughout the park and San Francisco and will provide messaging in five different languages. The campaign is funded by the NOAA Marine Debris Program.

National Oceanic and Atmospheric Administration

The MDP provides funding for Prevention Grants, including voluntary, incentive-based programs that encourage communities to adopt environmentally responsible practices. For more information, refer to Section V. B.

In FY 2018, the MDP funded Eckerd College, in St. Petersburg, Florida, to address the root source of the marine debris problem on campus. The initiative, “The Sea Around

Us,” encourages self-reflection and positive change to reduce, and eventually eliminate single-use plastic consumption on campus. By offering courses on plastic marine debris and implementing incentive programs to reward behaviors that reduce single-use items, students are becoming more mindful of their choices and aware of their impact. Eckerd College has also installed water filling stations, distributed bamboo utensils to students and faculty, and eliminated plastic bags in the bookstore.

In FY 2018, with funding from the MDP, San Francisco Surfrider Foundation partnered with the City of San Francisco, NPS, and community-based social marketing specialists, to design and implement a comprehensive program to reduce cigarette butt litter in the San Francisco Bay Area. The “Hold on to your Butt” project takes a two-pronged approach of: 1) increasing disposal options for cigarette butts; and 2) targeted behavior change among smokers. Surfrider and their partners will install at least 175 cigarette butt receptacles in butt debris hotspots, engage the public through community-based and social media campaigns, distribute 12,000 pocket ashtrays, monitor effectiveness through pre- and post-project cleanups, and conduct smoker outreach surveys to assess behavior and awareness of butt debris.

U.S. Agency for International Development

USAID’s MWRP has supported locally led projects with innovative and sustainable solutions to reducing ocean plastic waste, including many that have encouraged communities to adopt environmentally responsible practices. For example, in the Philippines, USAID-supported projects are implementing and scaling zero-waste approaches and piloting packaging-free convenience stores to test new approaches for product delivery. In Indonesia, USAID supported an organization that developed a mobile app that collects geospatial data (through crowdsourcing with youth volunteers) that has improved the efficiency of recyclables collection and sales. In Sri Lanka, an USAID-supported project is implementing a supermarket rating system to encourage plastic shopping bag reduction and introducing a “no plastic shopping bag” hour as an approach to raising public awareness. All USAID programs involve rigorous monitoring and evaluation of project effectiveness.

U.S. Coast Guard

USCG supports public awareness of pollution impacts, including marine debris and plastics in the ocean, through its Sea Partners Campaign programs and local level distribution of education and outreach materials. Community service programs by Sectors, Districts, and USCG Auxiliary routinely provide community service by conducting beach cleanups, public displays, and visiting local schools to distribute materials that instruct on safety, the wearing of life jackets as well as the importance of not harming the environment or aquatic and marine life by discarding trash, especially plastic.

U.S. Navy

Navy installations participate in voluntary programs, such as state-sponsored Clean Marina programs for Morale, Welfare, and Recreation marinas.

3.2: Federal agencies should work with state, local, tribal, and non-governmental entities to develop efficient recycling incentive programs for municipalities or appropriate venues.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Environmental Protection Agency

The main way EPA promotes appropriate recycling is through a comprehensive partnership effort encapsulated in the National Framework for Advancing the U.S. Recycling System. Following the 2018 America Recycles Summit, EPA worked with the organizations that signed the America Recycles Pledge to form workgroups aligned with four critical action areas: 1) Promote Education and Outreach; 2) Enhance Materials Management Infrastructure; 3) Strengthen Secondary Material Markets; and 4) Enhance Measurement. Actions to increase efficient and effective local recycling programs are embedded throughout the framework. There is an ongoing implementation effort of the actions in the framework between EPA and its partners, which is tracked by EPA's Office of Resource Conservation and Recovery.

National Park Service

NPS participates in recycling programs at National Parks in Alaska.

National Oceanic and Atmospheric Administration

The MDP partners with Covanta Energy, Schnitzer Steel, and the National Fish and Wildlife Foundation on *Fishing for Energy*, an innovative program to provide fishermen with a no-cost option to dispose of unwanted gear. The gear is separated into material that can be recycled by Schnitzer Steel and material that is converted to energy in Covanta's facilities. Since launching in 2008, Fishing for Energy has prevented more than 4.8 million pounds of old fishing gear from entering the landfill or environment from 55 fishing communities across the Nation.

U.S. Coast Guard

In 2018, USCG Office of Port and Facility Compliance, CG-FAC 2, continued its tradition of awarding the Biennial Rear Admiral William M. Benkert Award for Environmental Excellence. Benkert Award applicants are encouraged to provide examples of programs and initiatives that involve state, local, tribal, and NGO entities as part of a company's efforts to prevent pollution, ensure corporate buy-in, and work within its community. Key issues for Benkert Awardees include development of company policies on reduce, recycle, and reuse efforts, and monitoring the effectiveness of their pollution prevention and environmental protection programs. For the 2018 award cycle, four companies earned formal recognition: Polar Tankers, Norwegian Cruise Lines, Harley Marine Services, and Marathon Petroleum Company – Marine Transportation.

3.3: Federal agencies, where appropriate, should evaluate methods by which users of products that contribute significantly to marine debris can be given an incentive to select environmentally friendly alternatives or improve use of recycling infrastructure. Such incentive programs or pilot projects should include regular monitoring and evaluation of their effectiveness.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

DOS incorporated the promotion of utilizing alternative materials and improved use of recycling infrastructure into many of the projects it funded during FY 2018 – FY 2019. This included work to train households on the proper methods for waste sorting and recycling and providing reusable shopping bags in target communities in Vietnam. Embassy green teams have also promoted the use of environmentally friendly alternatives, such as reusable water bottles, recyclable packaging in cafeterias, and more, to promote positive actions both inside and outside Embassy communities. The Department’s waste management efforts also include waste reduction and recycling campaigns, auditing local waste management infrastructure, upgrading on-site waste management capabilities, and composting.

Environmental Protection Agency

Actions addressing this recommendation are outlined in the National Framework for Advancing the U.S. Recycling System, such as an action to, “Develop options for an incentive-based voluntary program focused on increasing recycling as well as the demand for post-consumer recyclable materials.”

National Oceanic and Atmospheric Administration

The MDP provides funding for Prevention Grants, including projects that encourage users of products that contribute significantly to marine debris to select environmentally friendly alternatives or improve the use of recycling infrastructure. When appropriate, these projects include regular monitoring and evaluation of their effectiveness.

In Central California, *One Cool Earth* worked with students and educators to implement recycling, composting, and waste reduction programs that allowed students to measure the difference they made in their schools. Through this project, students from 15 inland schools were able to connect with the ocean and understand their impact on the Salinas River watershed and the ocean. As a result of student-led outreach, the entire Atascadero Unified School District agreed to replace plastic foam trays with a recyclable alternative. For more information on Prevention Grants, refer to Section V. B.

U.S. Agency for International Development

USAID’s MWRP has supported locally-led projects with innovative and sustainable solutions to reducing ocean plastic waste, including many that have piloted incentives to promote environmentally friendly alternatives and improved use of recycling infrastructure. For example, in Indonesia, a USAID-supported project is coordinating

community waste banks to create economies of scale, resulting in nine metric tons per month of plastic waste being fed into a central recycling center. All USAID programs involve rigorous monitoring and evaluation of project effectiveness.

U.S. Coast Guard

USCG Surface Forces Logistic Center (SFLC) accounts for assets in a supply support system, which includes a disposal process that maximizes reuse. This system reduces the chance of abandonment of equipment or assets that could otherwise become marine debris. This Naval and Electronics Supply Support System applies to USCG inventory, stored at the Baltimore Inventory Control Point, required to support USCG surface assets (e.g., cutters and small boats) and includes aids to navigation (e.g., markers and buoys).

This process adheres strictly to the Federal Government's standards for accountability and tracks every government-owned asset from cradle to grave. SFLC manages approximately 39,000 stocked numbered assets, worth approximately \$980 million and separately cataloged within the Federal stock system. Once issued to a user, an inventory manager accounts for the item and determines when the asset should be returned to the SFLC to be stored, repaired, and reissued to another unit. This process for storing, repairing, and reusing property reduces USCG consumption of resources and recycles usable property such as surface assets and aids to navigation. Throughout an item's lifecycle, SFLC tracks and accounts for all of the inventory to ensure the USCG meets stringent Chief Financial Officer Act requirements. If an asset becomes obsolete, no longer repairable, does not support a configuration in the field, or is in excess to our needs, the asset is temporarily stored until it can be processed to the Defense Logistics Agency for reutilization by another government agency or final proper disposal. This system of asset accounting and disposal is subject to annual audits managed by the USCG, further ensuring reutilization and proper disposal of assets.

The USCG participates in initiatives when presented and welcomes the opportunity to support other interagency efforts to improve recycling infrastructure.

Theme 2: Response to Debris Already in the Marine Environment

Topic 4. Enforcement

4.1: Federal agencies should continue to review enforcement authorities regarding marine debris and items that may become marine debris, enhance the effective use of those authorities as needed and appropriate, and ensure a coordinated approach to enforcement of relevant authorities.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Environmental Protection Agency

EPA has a unique capacity to address aquatic trash at the source, as it moves through the watershed, and as it settles in the marine environment. EPA focuses on maximizing the

agency's ability to fulfill both regulatory and non-regulatory mandates for aquatic trash/marine debris prevention through its Offices of: 1) Resource Conservation and Recovery; 2) Wastewater Management; 3) Pollution Prevention and Toxics; 4) Solid Waste; 5) International and Tribal Affairs; 6) Research and Development; and 7) Wetlands, Oceans, and Watersheds.

There are a number of statutory and regulatory tools that exist at the Federal, state, and municipal levels to explicitly limit the amount of trash that enters aquatic ecosystems. For example, via the National Pollution Discharge Elimination System, authorized by CWA Section 402, stormwater permit provisions can be written to address trash through source reduction efforts, trash capture devices that are part of stormwater conveyance systems, or other means.

In addition, CWA Section 303(d) allows for the listing of waterbodies impaired from meeting water quality standards because of trash. Those waterbodies may then be subject to the development of TMDL limits for trash entering water bodies, or there may be other means implemented even in the absence of a TMDL so that the waterbody comes into compliance with standards.

EPA does not engage in the enforcement of trash regulations and ordinances at the state and local levels. Rather, the multi-faceted national and regional programs provide support to state and local agencies through financial and technical assistance.

U.S. Coast Guard

The January 1, 2013, amendments to MARPOL Annex V prohibit the discharge of most Annex V wastes (all of which would contribute to marine debris), with very few exceptions. Implementing regulations, under the authorities in the Act to Prevent Pollution from Ships (APPS, 33 U.S.C. 1901 et seq.), are contained in 33 CFR 151 and 33 CFR 158. Consequently, the release of debris, garbage, trash are violations of MARPOL Annex V, as well as U.S. Code of Federal Regulations (CFR), Title 33 Sections 151.51 – 151.77. The penalty for a single first-time offence range from \$1,000 to \$2,000 and increase upon subsequent offenses. Under the authority of 33 CFR 27.3 and U.S. Code 33 U.S.C 1908(b)(1), the maximum civil penalty for a MARPOL Annex V offense would be \$74,552.

It is likely too soon to gauge the effectiveness of what essentially constitutes zero-discharge for ships of waste material that contributes to marine debris. However, the USCG continues to assess the effectiveness of its MARPOL Annex V programs on both ships and at U.S. ports. U.S. ports and terminals are required to provide reception facilities for MARPOL Annex V wastes and ensure environmentally responsible disposal of such wastes.

As a party to MARPOL Annex V, the United States is active in International Maritime Organization (IMO) deliberations related to shipboard and port waste management and pollution prevention. Since IMO work began in 2018, USCG has been active in the working groups and correspondence groups related to the "Action Plan to Address

Marine Plastic Litter from Ships.” Discharge of plastic and other materials that may become marine debris are largely prohibited under Annex V; the Action Plan is addressing areas that previously have not been addressed or have not been addressed adequately. In particular, the Action Plan will consider possible revisions to Annex V to better account for the marking and retrieval of fishing gear. Fishing gear contributes significantly to marine debris.

4.2: In appropriate cases, Federal agencies should refer violations of Federal law, such as the Act to Prevent Pollution from Ships, Clean Water Act, and Ocean Dumping Act, to the Environment and Natural Resources Division of the U.S. Department of Justice for civil or criminal enforcement action.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of Justice

The Department of Justice (Department) continues to address the problem of marine debris through judicial civil and criminal enforcement of environmental violations involving marine debris. Agencies such as EPA, NOAA, and the USCG refer cases to the Department, where they are handled by the Environment and Natural Resources Division (ENRD), sometimes working with the U.S. Attorneys’ offices.

For example, in June 2019, the United States District Court for the Southern District of Florida ordered Princess Cruise Lines Ltd. and its parent, Carnival Cruise Lines & plc, to pay a \$20 million criminal penalty and be subject to enhanced supervision after admitting to violations of probation attributable to senior Carnival management. The court ordered Carnival’s Chairman of the Board, Chief Executive Officer, and Chief Financial Officer to attend the hearing, then asked them to personally pledge their commitment to correcting the company’s compliance issues and corporate culture. The court also extended the company’s probation by 3 years.

Princess originally pleaded guilty in April 2017 to felony charges stemming from its deliberate dumping of oil-contaminated waste from one of its vessels and intentional acts to cover it up. The court originally sentenced Princess to, among other things, pay \$40 million and complete 5 years of probation. During probation, all Carnival’s vessels eligible to trade in U.S. ports were required to comply with a court-approved and supervised environmental compliance plan, including audits by an independent company and oversight by a court-appointed monitor.

During the first 2 years of probation, however, Carnival violated the terms on multiple occasions, including some violations deemed major. One of the violations involved deliberately discharging plastic in Bahamian waters from the Carnival *Elation* and failing to accurately record the illegal discharges. Prosecutors advised the court that this particular instance was an example of a more widespread problem, identified by the external audits, of failing to segregate plastic and non-food garbage from waste thrown overboard from numerous cruise ships. Under the terms of a June 2019 settlement with

the United States, Carnival agreed, among other things, to make major changes in how the company uses and disposes of plastic and other non-food waste to urgently address a problem on multiple vessels concerning illegal discharges of plastic mixed with other garbage.

Our prosecutors concluded a second case involving unlawful discharge of solid wastes into the ocean in July of 2019. There, the United States District Court for the District of Guam convicted the Japanese fishing company, Fukuichi Gyogyo Kabushiki Kaisha, of two violations of the Act to Prevent Pollution from Ships and one count of obstruction of an agency proceeding. The charges stemmed from discharges of waste oil and oily bilge water from the Fishing Vessel (F/V) *Fukuichi Maru No. 112* into international waters and the attempt to cover up those discharges when the vessel was inspected by the USCG in Apra Harbor, Guam. The charges also included failing to properly document the discharge of fishing gear and plastics from the vessel, and obstructing a USCG Port State Control inspection.

Fukuichi pleaded guilty and was ordered to pay a \$1.5 million criminal fine and serve a 5-year term of probation, during which vessels owned and/or operated by the company would be banned from entering the United States' Exclusive Economic Zone, Territorial Sea, or a port or terminal belonging to the United States without prior approval. The court also ordered Fukuichi to implement a comprehensive environmental compliance plan, including vessel audits, and send the audit results to the nearest USCG Captain of the Port prior to any of the company's vessels entering U.S. waters or a U.S. port.

Fukuichi owned and operated the vessel, which conducted fishing operations throughout the Pacific Ocean. The vessel entered Apra Harbor, Guam, on April 1, 2019, for repairs to its cargo refrigeration system. According to court documents, members of the USCG boarded the vessel and discovered fifteen pollution and safety deficiencies and detained the vessel. In addition to numerous leaks of water and oil into the vessel's bilges, the inspectors examined the vessel's garbage record book and discovered that it contained a series of "ditto" marks instead of the signature of the officer in charge of managing the garbage. In fact, interviews with the crew revealed that the vessel had discharged animal carcasses and fishing gear, including plastic, then failed to properly record the discharges.

Finally, the Department enforcement of pollution laws such as the Resource Conservation and Recovery Act and the CWA, as well as ocean dumping and natural resource damage provisions, addresses the problem of marine debris by targeting pollution that, while not directly released into the ocean, may migrate downstream and eventually contribute to such debris.

Environmental Protection Agency

EPA has referred stormwater-related enforcement actions to the Department of Justice where trash was one of the pollutants of concern.

U.S. Coast Guard

USCG carries out domestic vessel inspections and port state safety and environmental inspections of foreign ships visiting U.S. ports or transiting waters under U.S. jurisdiction, in some cases out to the 200 nautical mile Exclusive Economic Zone, as allowed by international regulations (MARPOL and SOLAS). Where violations of regulations aimed at pollution prevention occur, the USCG investigates and may impose fines, prevent ships from sailing, or prevent ports or terminals from receiving ships. Where a ship violates pollution regulations, USCG may refer cases to the ENRD of the U.S. Department of Justice under relevant authorities (Act to Prevent Pollution from Ships, CWA, and Ocean Dumping Act).

On May 2, 2019, a case was referred to the Department of Justice after port state control officers from Sector Guam observed missing and altered entries in the oil and garbage record books onboard a commercial fishing vessel. The Hearing Officer reviewed the vessel's two Garbage Record Books and noticed that only category B (food waste) entries were recorded. The Garbage Record Book entries were written in Japanese. The Garbage Record Book was not translated into English, French, or Spanish, as required by MARPOL regulations.

The Chief Engineer fled U.S. jurisdiction. Two charges were brought under the authority of the Act to Prevent Pollution from Ships (APPS, 33 U.S.C. § 1908(a)) for violating garbage management requirements set forth in 33 CFR §151.55. An additional charge was brought for obstruction of an Agency Proceeding (18 U.S.C. §1505). The vessel owner pleaded guilty to failure to properly maintain oil and garbage record books and obstruction of justice. The owner was sentenced to 5 years' probation, issued a \$1,500,000 fine and a \$1,200 special assessment fee.

Topic 5. Cleanups

5.1: Federal agencies should work together and contribute to coordinated removal efforts of marine debris and items that can become marine debris in areas under Federal jurisdiction, with priority given to heavily impacted areas.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Environmental Protection Agency

The EPA continues to consult with and contribute to statewide and regional Marine Debris Action Plans, all of which include removal-related actions. Examples from FY 2019 include the Hawaii Marine Debris Action Plan and the Gulf of Maine Council on the Marine Environment's Marine Litter Strategy workgroup. Coordination opportunities are also being explored for the Great Lakes Marine Debris Action Plan.

A specific example of a removal project was a collaboration between EPA, the Border 2020 Waste and Enforcement Task Force, and the California EPA Solid Waste Management Working Group to develop and implement the New River-Mexicali Agricultural Drains Trash Removal and Mitigation project. Project partners coordinated

with one another to reduce trash in the New River in Imperial County, which drains into the Salton Sea, by removing and mitigating trash at the source along five kilometers in five agricultural drains in Mexicali, Mexico. After remediation, they developed educational campaign material to engage local citizens to recognize the value of agricultural drains, while also promoting sustainability and addressing enforcement issues.

National Park Service

The Center for Coastal Studies, with the support of a NOAA MDP Removal Grant, mobilized fishers and volunteers to identify, document, and properly dispose of DFG in Cape Cod Bay and Cape Cod National Seashore. Eight fishers joined the Center for Coastal Studies for 18 days on the water and collected more than 11 U.S. tons of gear, more than half of which was sent to a recycler.

NPS engaged in supporting the removal of marine debris at impacted areas currently designated as wilderness in Kenai Fjords National Park. In addition, beach cleanups happen regularly at each of the parks in the Golden Gate National Recreation Area region.

National Oceanic and Atmospheric Administration

Since 1996, NOAA has contributed funds to support the large-scale marine debris survey and removal efforts within the Papahānaumokuākea Marine National Monument, the largest contiguous fully protected area under the U.S. flag. Since removals began in 1996, NOAA and multi-agency partners have collectively removed nearly 923 metric tons of derelict fishing gear and plastics from this pristine and remote area.

U.S. Army Corps of Engineers

Through its marine debris/drift collection program, USACE operates vessels in several coastal harbor areas in the continental U.S. to regularly remove large items that pose the potential to obstruct or damage vessels operating in Federal navigation channels. This collection often results in the incidental pick up and removal of items such as plastic bottles, drums, and other floating marine waste. However, the goal of the program focuses on collection and on-shore disposal of tree trunks and large branches, broken dock sections, timbers from building and dock demolition, etc. Harbors with debris/drift collection programs include Seattle, San Francisco, New York, Baltimore, Washington, DC, Norfolk, and Wilmington, North Carolina. The program is coordinated with the USCG and local port authorities. USACE is also authorized to aid in disaster recovery efforts by removing obstructions from Federal waterways.

U.S. Coast Guard

USCG Marine Transportation Systems Directorate, CG-5PW, and Office of Waterways and Ocean Policy, CG-WWM-1, have roles in marine debris when there is obstruction to navigation. USCG will notify mariners of hazards to navigation through broadcast notices to mariners and other local notices and will support USACE in the removal of such hazards, as deemed by the appropriate District Commander.

Only under very specific circumstances will the USCG become directly involved in the removal of marine debris, usually limited to ADVs following a natural disaster. USCG authorities under the Federal Water Pollution Control Act (33 U.S.C. 1251), Oil Pollution Act (OPA, 33 U.S.C. 2761), and National Contingency Plan (40 C.F.R. 300) apply only to removal of oil and hazardous contaminants from the marine environment. USCG Office of Marine Environmental Response Policy provides policy and guidance to Federal On-Scene Coordinators in the removal of oil and hazardous contaminants from the coastal zone, in accordance with the above cited legal and regulatory requirements. However, following a presidentially declared major disaster or emergency under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) (42 U.S.C. 5121 *et seq.*), USCG may support the affected state under a Federal Emergency Management Agency (FEMA) mission assignment in the removal of pollutants and associated derelict or abandoned vessels in accordance with state authorities.

Between 2018 and 2019, USCG led the pollution response initiative in accordance with the Stafford Act as a result of Hurricanes Michael, Florence, and Dorian. USCG operations under Emergency Support Function 10 (ESF-10), occurred within the States of Florida and North Carolina and focused on the mitigation of the pollution threat posed by displaced vessels and orphan containers impacting the coastal zone.

Operating under an ESF-10 mission assignment, USCG is tasked with the removal of all oil and hazardous contaminants from the coastal environment, including the removal of ADVs if the affected state has the authorities to do so. Working in a unified operation with relevant state agencies that have authority concerning safety and the removal of derelict vessels, the ESF-10 response allows for USCG to recover pollutants from the displaced vessels and place the vessel in a state-designated and managed staging area. Once a vessel was deposited in the staging area, custody of the vessel was transferred to the states for further disposition.

All other marine debris recovery operations belong to ESF-3 (Public Works and Engineering, USACE) or NOAA.

In July 2018, the State of Florida released a report on lessons learned from marine debris operations during the 2016 and 2017 hurricane seasons.¹⁷ Between 2018 and 2019, costs associated with hurricane responses under the authority of ESF-10 mission responsibilities as well as costs associated with the USCG designated Federal On-Scene Coordinator (FOSC), were as follows:

In 2018, \$18.6 million of FEMA ESF-10 funding was spent in response to Hurricane Michael. USCG assisted the State of Florida by assessing 544 displaced vessels, removal of 175 vessels, and recovering hazardous product while leaving 77 vessels in place.

In 2018, \$6,656,000 of FEMA ESF-10 funding was spent in response to Hurricane Florence. USCG assisted the State of Florida by assessing 471 displaced vessels,

¹⁷ <https://floridadep.gov/sites/default/files/FDEP-FCO-MD-Lessons-Learned-Final.pdf>

removal of 7 vessels, and recovering hazardous product while leaving 120 vessels in place.

In 2019, \$9,766.75 was obligated from the Oil Spill Liability Trust Fund in response to Hurricane Dorian and authorized under the authority of the FOSC, and not under the ESF-10 mission assignment. Under FOSC authority, USCG Sector North Carolina assessed 66 vessels and remediated hazardous products from three vessels at the cost of \$9,766.75.

U.S. Fish and Wildlife Service

The USFWS continues to partner with NOAA and the State of Hawaii to remove marine debris from the Papahānaumokuākea Marine National Monument. Each year, many metric tons of debris are removed through this collaboration.

U.S. Navy

Navy installations, through their Integrated Natural Resource Management Plans, have developed and executed marine debris projects to support threatened and endangered species and habitats in the vicinity of the installation boundaries. One of these projects was completed for Joint Base Pearl Harbor Hickam in 2019.

5.2: Federal agencies should examine how existing programs can be targeted to support difficult marine debris removal efforts.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Environmental Protection Agency

EPA encourages participation in annual cleanup events and has participated in and partnered with other organizations' remediation efforts. EPA has also sponsored many trash and marine debris removal events.

The TFW program helps bring awareness to existing tools and technology related to nationwide cleanups. For example, the Lower Columbia River Estuary, a National Estuary Program funded by EPA, partnered with NOAA to test the Marine Debris Tracker Application during on-the-ground cleanups and data collection efforts in the watershed, and provided the agency with feedback on the tool.

National Park Service

NPS continues efforts to support marine debris removal related projects as they arise in Alaska.

Park staff represented the U.S. Virgin Islands NPS park units at the NOAA Emergency Marine Debris Workshop on August 20-21, 2019.

Hurricanes Irma and Maria made landfall in the U.S. Virgin Islands between September 6 and September 12, 2017 and impacted park resources significantly. Strong winds and

heavy seas displaced vessels from their moorings. To this end, numerous vessels washed ashore at parks from Georgia to the Caribbean. Parks impacted (number of vessels) include: Big Cypress National Preserve (7), Biscayne National Park (3), Canaveral National Seashore (5), Cumberland Island National Seashore (3), Dry Tortugas National Park (1), Everglades National Park (46), and Virgin Islands National Park (over 100). Displaced vessels varied in size, condition, and location, and posed various levels of risk to park visitors, natural resources, and cultural resources. These parks also had large piles of debris scattered across park shorelines. Using NPS funds, vessels were removed in 2018 through a variety of contracting and technical methodologies. Costs to these efforts totaled over \$4 million. Marine debris from these hurricanes remains and efforts continue for their removal.

National Oceanic and Atmospheric Administration

The MDP provides annual funding for removal through Removal Grants. This funding opportunity prioritizes detection and removal of DFG and the removal of medium- to large-scale marine debris that have a negative impact on NOAA trust resources and important habitat areas. Included within the scope of this opportunity is funding for the removal of ADVs. Assessing, removing, and disposing of these vessels requires significant financial and technical resources.

In FY 2018 and FY 2019, the MDP provided support through a Removal Grant project for Pacific Coastal Research & Planning to coordinate the removal of a derelict fishing vessel from the lagoonal reef in Saipan, Commonwealth of the Northern Mariana Islands, in partnership with the Commonwealth Ports Authority, Department of Land and Natural Resources Division of Fish and Wildlife, and Bureau of Environmental and Coastal Quality.

The F/V Lady Carolina, an 83-foot, 54-ton, steel-hulled fishing vessel, broke free of its mooring during the devastating passing of category 4 Typhoon Soudelor in August 2015. Removing the grounded vessel, which is located in the northeast corner of Saipan's ship channel, prevents further environmental impacts to sensitive habitat, such as coral reefs, and endangered species. Additionally, removal of the vessel is providing the local community with closure to one of the more visible remaining impacts of Typhoon Soudelor.

The active 2018 hurricane season caused marine debris impacts in the Gulf of Mexico, Southeast, and Pacific Islands regions. The MDP assisted local, state, and Federal partners with the responses to Hurricanes Florence and Michael, and Typhoon Yutu, during the late summer and fall of 2018 and through grants to partners in FY 2019. In addition, the MDP continued to remove marine debris from communities heavily impacted by Hurricanes Harvey, Irma, and Maria in 2017. For more information on the MDP's cleanup priorities, refer to Sections V. C and V. D.

In addition, the MDP has been proactive in addressing marine debris emergency response by working with Federal partners and coastal states to develop marine debris emergency response guides. These guides aim to outline existing structures to facilitate coordinated,

well-managed, and immediate responses to any natural disaster or event that generates large amounts of marine debris. In FY 2018 and FY 2019, the MDP completed marine debris emergency response guides for Louisiana, Texas, Virginia, and Maryland. The MDP continues the process of developing similar response guides for other coastal states and territories.

U.S. Coast Guard

Proposed construction, permitting, or decommissioning projects to USCG facilities or proposed projects requiring USCG approval, such as the construction and permitting of deep water ports, are subject to National Environmental Policy Act documentation and review. These projects include standard specifications and require constant trash and debris clean up on sites. In addition, these projects are evaluated for their potential impact to threatened or endangered species and protected marine mammals and migratory birds from the potential ingestion of resultant debris or erosion. Standard specifications and best management practices are applied to the project description to reduce impacts and comply with state or Federal regulations. The best management practice regarding marine debris included in proposed project is:

“All Project-related activities will comply with Federal regulations to control the discharge of operational wastes such as bilge and ballast waters, trash and debris, and sanitary and domestic waste generated from vessels associated with the proposed project.”

5.3: Federal agencies should partner with state, local, tribal, and non-governmental entities to continue to support and conduct cleanup efforts.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

DOS continues to support cleanup efforts through the International Coastal Cleanup and led efforts to engage with host countries to highlight the damage of improper waste disposal and marine debris to the marine environment.

During FY 2018 – FY 2019, DOS grantee Center for Community Health Research and Development implemented the project titled, “Social Mobilization For Marine Waste Management,” which aimed to reduce marine debris via social change in Ly Son Island, Vietnam. The project has established a local steering committee on environmental protection; delivered 50 new public waste receptacles; gathered more than 300 people to clean 15 kilometers of coast; collected 500 kilograms of plastic waste; trained 50 people in waste collection and processing; trained 45 community leaders in communications skills; trained 600 households in proper waste sorting, resulting in a ten-fold increase in the percentage of households practicing proper waste sorting; and provided 3,000 households with reusable shopping baskets to replace single-use plastic bags.

Additionally, grantee World Wildlife Fund-Peru implemented the project titled, “Making a business out of a problem: Creating a circular economy for abandoned, lost, and discarded fishing gear in Peru,” with the intent to prevent and reduce the amount of Abandoned, Lost, or otherwise Discarded Fishing Gear (ALDFG) entering Peru’s coastal waters by collecting and recycling end-of-life fishing gear. The project launched net collection programs in three communities, obtained signed letters of commitment from the three largest anchoveta fisheries in Peru (Tasa, Copeinca, Austral), and secured a supply of more than 200,000 kilograms annually of end of life fishing nets for recycling.

Environmental Protection Agency

Although the TFW program has focused more on prevention projects and actions in recent years, it does still partner with organizations on cleanup events, especially when those events are paired with educational messaging.

For example, the TFW program partnered with the Schuylkill Action Network, the Partnership for the Delaware Estuary (a National Estuary Program), and Schuylkill River Greenways National Heritage Area to support the development of the Schuylkill CleanSweep App. Through this funding, the Schuylkill CleanSweep App and litter data collection system were expanded to allow users to find and record cleanup efforts, register cleanup events and teams, and report and adopt litter hotspots. The expansion of the CleanSweep App was designed to help volunteer cleanup coordinators document and record team successes within the watershed. Metrics and photos uploaded through the app will also be displayed on the Schuylkill CleanSweep website.

Another example of a TFW cleanup partnership is the “Barnegat Bay Blitz” and illegal dumping campaigns in New Jersey. The New Jersey Department of Environmental Protection, Barnegat Bay Partnership (a National Estuary Program), and Clean Ocean Action have worked together over the past few years to engage thousands of volunteers in cleanups at hundreds of locations throughout the Barnegat Bay watershed. This effort has resulted in watershed-wide data collection, engagement, and education. Due to the success of the Barnegat Bay Blitz, the New Jersey Department of Environmental Protection announced the start of its illegal dumping campaign, known as “Don’t Waste Our Open Space,” focused on state waterways.

National Park Service

Boston Harbor Islands National Recreation Area hosts more than 15 beach cleanup events per year, led by Thompson Island Outward Bound Education Center on Park islands.

The Acadia National Park Volunteers-in-Parks program works with Friends of Acadia’s Stewardship volunteers to remove debris through shoreline cleanups, including shoreline cleanups with middle school students, collecting mostly plastic trash.

Gateway National Recreation Area hosts several cleanup efforts, including Clean Ocean Action Corporate Beach Sweeps (Sandy Hook was one of the areas cleaned, and volunteers come from corporations of all sizes and locations around NJ and NY) and

World Wetlands Day Plumb Beach Cleanup (cosponsored by NPCA, Jamaica Bay-Rockaway Parks Conservancy, the American Littoral Society, Assembly Member Jaime R. Williams – NYS AD 59, and Gateway National Recreation Area). In addition, under a 2018-2019 permit from New York City Parks, Gateway National Recreation Area conducted invasive vegetation and debris removal to restore the native plant palette in Sunset Cove.

In 2018 and 2019, Fire Island National Seashore partnered with the New York Marine Rescue Center to host monthly volunteer beach cleanups at the Wilderness Visitor Center. Fire Island National Seashore also partnered with local businesses, municipalities, and nonprofits to organize and implement a community volunteer debris cleanup special event of the Patchogue River. Additional marine debris cleanups at Park sites were conducted in partnership with other organizations (i.e., friends groups, Scout Groups, etc.).

National Parks in Alaska rely heavily on partner programs, such as Kenai Fjords which partners with a volunteer NGO for marine debris removal effort every year.

Beach and benthic cleanups (fishing gear mostly) are occurring on a regular basis on the west coast and Pacific Islands.

National Oceanic and Atmospheric Administration

The MDP contributes annual funding support for the Ocean Conservancy's International Coastal Cleanup, the largest, single-day volunteer cleanup event. In September 2018, 1,080,358 volunteers cleaned up over 22,000 miles of coastline in 122 countries, picking up more than 22.3 million pounds of trash. Of the 97,457,984 items removed, the most commonly found items included those that are used every day, such as cigarette butts, food wrappers, straws/stirrers, utensils, and plastic beverage containers. For more information on the MDP's removal efforts, refer to Section V. C.

U.S. Coast Guard

In June 2019, the USCG Auxiliary Beach Clean-Up program guide was approved and posted as an authorized Auxiliary activity. Now an authorized activity, Auxiliarists are able to engage in beach cleanups under assignment to duty. Currently, there is no designated activity code enabling the USCG to track the amount of Beach Clean-Up activity.

While the USCG does not have targeted funding for cleanups, local USCG field personnel contribute to community efforts as time and assets allow. Such activities may include harbor safety patrols for local events, beach cleanups, harbor swims, and awareness/outreach at community and local NGO events.

U.S. Navy

At the local level, the Navy continues to partner with state and local authorities to assist in the removal of marine debris, as well as conduct beach and shore cleanups at its installations.

Theme 3: Research and Development

Topic 6. Research

6.1: Federal agencies, coordinating through the IMDCC, should sponsor and conduct research to characterize the nature of marine debris and further investigate reducing, mitigating, preventing, and controlling marine debris and assessing its impacts, with a particular focus on developing cost-benefit analyses for these actions.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

DOS worked with grantee Ocean Conservancy on the development of the project titled, “Implementing Best Practices for Fishing Gear Management to Reduce and Prevent ALDFG in the Caribbean Region,” to reduce and prevent the incidence of ALDFG in Jamaica and Dominica. The grantee incorporated the Global Ghost Gear Initiative Best Practices Framework into the COAST checklist for incentivizing good fisheries management practices through an insurance product and made progress toward implementing the framework; developed innovative fishing gear and gear marking technologies to prevent ALDFG and facilitate gear recovery; and gathered information on the most prevalent types of ALDFG in Caribbean nations to develop a standardized gear retrieval protocol.

Environmental Protection Agency

EPA supported a number of research projects in FY 2018 – FY 2019, with an emphasis on microplastics. Microplastics research was conducted in Long Island Sound, San Juan Bay, the Delaware River, the Anacostia River, the Tijuana River, Puget Sound, and the Columbia Slough.

A Regional Applied Research Effort (RARE) research project, “Researching the quantification and fate of microplastics in U.S. Caribbean scleractinian corals,” in collaboration with EPA’s Office of Research and Development, investigated microplastics both in the lab and in the field. Lab studies included a series of experiments on two species of coral to see the impact of microplastics on calcification, ingestion size limits and retention, and microbead versus microfiber ingestion and retention.

EPA also worked on a project to quantify the recovery of microplastics in sediments with commonly-used methods published in the scientific literature. To accurately quantify the risks associated with exposure to micro/nano plastic pollution in the aquatic environment, methods are needed to measure sediment microplastics. The goal of this RARE project was to help determine the strengths and weaknesses of some of the more common published methods. This project included the collection, extraction, and isolation of microplastics from submerged estuarine sediments along the Tidal Delaware River,

located within the study area of the Delaware Estuary National Estuary Program. Recommendations from this project will allow EPA, states, and tribes to choose methods that are appropriate for the particular objectives of their investigations. This research was an important first step in understanding the ubiquity and contamination of microplastics in the area.

EPA also participated in a number of microplastics-related summits hosted to help disseminate information and recent findings. In December 2017, an Office of Research and Development Internal Microplastics Workshop was held at EPA Headquarters in Washington, DC, where discussions included EPA Office of Water and Office of Research and Development perspectives on the marine debris issue, ongoing RARE research and potential future research priorities, and next steps.

In addition, the Chesapeake Bay Program's Scientific and Technical Advisory Committee held a two-day Microplastics Workshop to determine the state of microplastics research in the Bay, data needs, field and laboratory research methodology, and associated policy and management needs. The TFW program was also involved in the June 2019 Lower Columbia Estuary Partnership Science to Policy Summit. This meeting addressed plastic pollution, barriers to reducing use, and potential individual and business solutions in the Lower Columbia River with panelists from local government and private companies.

National Park Service

Cleanups within Fire Island National Seashore (refer to Recommendation 5.3 above) generally document, sort, and weigh what was collected to characterize the nature of marine debris at cleanup sites.

NPS cooperated with the University of Minnesota-Duluth's Large Lakes Observatory to conduct a detailed investigation into the abundance and composition of microdebris in water and beach sediments in and near Apostle Islands National Lakeshore. Results have been summarized in a journal article¹⁸ as well as multiple scientific and public presentations. Insights from this work have also been incorporated into formal and informal park interpretive presentations and teacher training workshops.

Other research efforts include:

- Gateway National Recreation Area: 2019 research permit (Stony Brook University), "Qualitative and quantitative comparisons of marine debris on recreational ocean beaches in Queens, NY."
- Acadia National Park: 2019 research permit (Cedar Crest College), "Marine microplastics in Acadia National Park." This study also incorporated citizen scientists.
- Assateague Island National Seashore: 2018 research permit (University of Exeter), "Microplastics on Turtle nesting beaches: the world's most extensive survey." A NPS vehicle was used to access sand sampling locations.

¹⁸ <https://pubmed.ncbi.nlm.nih.gov/32693281/>

- Fire Island National Seashore: 2019 research permit (Purchase College, State University of New York), “Determining the distribution and abundance of micro and mesoplastics within the intertidal zone.” The goal of the project is to understand the quantity of microplastics present in South Shore beaches. By collecting samples on both the ocean and bay beaches, the study will be able to assess the level of microplastic pollution in both environments.

National Oceanic and Atmospheric Administration

The MDP provides funding for research projects that characterize the nature of marine debris and further investigate reducing, mitigating, preventing, and controlling marine debris and assessing its impacts. For example, in FY 2019, the MDP completed a study that examined how the amount of marine debris on U.S. beaches can affect the behaviors of beachgoers and the economies of coastal communities that depend on tourism. The results of the study revealed that doubling the amount of marine debris on beaches within the study areas would decrease the number of visitors to those beaches. This decline in beach visitors would result in less tourism dollars spent and translate into a decrease in local jobs. This study deepens the understanding of the economic impact of marine debris to tourism-dependent coastal communities and illustrates the importance of marine debris prevention and removal efforts. For more information on the MDP’s research activities, refer to Section V. E.

U.S. Agency for International Development

USAID’s MWRP has supported the first rigorous baseline data for mismanaged plastic waste in a megacity of the developing world. Led by Dr. Jenna Jambeck of the University of Georgia, this work builds on her earlier research that only had national-level data for providing estimates of land-based sources of plastic waste entering the oceans. The research is being conducted in partnership with a local organization and city officials from Manila to help prioritize actions that can have the most significant economic and environmental impact, whether in the form of reducing leakage of waste at last-chance capture points, improving infrastructure, strengthening collection, raising awareness, or choosing different products/materials.

USAID has produced in-depth case studies that examine how two of USAID’s grants in Vietnam have addressed plastic pollution by changing relevant human behaviors, gather insights on how context has supported or impeded behavior change goals, and document lessons that can inform future programs.¹⁹ USAID also supported the development of a white paper that summarizes and documents the current state of knowledge on the adverse impacts of marine debris on biodiversity in Latin America and the Caribbean region.

U.S. Coast Guard

USCG supports IMDCC coordination of research to characterize the nature of marine debris. USCG continues to attend workshops and seminars focused on assessing the impacts of marine debris on the ocean environment, research on impacts of micro, meso,

¹⁹ <https://urban-links.org/resource/overview-behavior-change-in-local-system-to-mitigate-ocean-plastic-pollution-in-vietnam/>; <https://urban-links.org/resource/behavior-change-in-local-system-to-mitigate-ocean-plastic-pollution/>

and macro plastics on the health of the oceans, and the effects of microfibers on marine mammals and fish in the ocean.

To support USCG work at IMO as part of the “Action Plan to Address Marine Plastic Litter from Ships,” USCG provided contractor support from the U.S. Naval Research Laboratory to conduct literature searches related to the age, nature, and deposition patterns of plastic marine debris. Results of the literature search were shared with partner Federal agencies providing technical support for IMO work, as well as with NGOs active at IMO and international work group colleagues in Australia, Canada, Ireland, and the United Kingdom.

6.2: Federal agencies, cooperating through the IMDCC, should improve efforts to monitor marine debris, including shoreline, floating, and submerged debris, using lessons learned from previous Federally funded monitoring efforts.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

DOS support for the International Coastal Cleanup directly supported improved shoreline monitoring of marine debris via the database generated by the cleanup activities. In FY 2020, DOS plans to leverage multilateral fora, including APEC, to increase efforts on improved monitoring of marine debris via the development of workshops and a framework document to highlight best practices for APEC member economies in Asia.

Environmental Protection Agency

Under the Marine Protection, Research, and Sanctuaries Act, EPA conducts oceanographic surveys to monitor the impacts of regulated dumping at designated ocean disposal sites. EPA also provides support for organizations that take part in and collect data for the Ocean Conservancy’s International Coastal Cleanup.

Starting in 2020, EPA is piloting a sediment microplastics methodology in two states (New Hampshire and Maine) as part of its 2020 National Coastal Condition Assessment. This will allow for an assessment of how much of a problem microplastics are along the coasts of those two states and allow for fine-tuning of the methodology for future National Coastal Condition Assessments. EPA also leveraged a hydrodynamic model for the Salish Sea to add modeled predictions of fate and transport of microplastics and macrotrash in the Salish Sea, with the intention of monitoring those areas going forward and developing management actions to address the issue.

National Park Service

Monitoring of marine debris has taken place in Katmai National Park and Aniakchak National Monument using a modified NOAA protocol.

In addition, the South Florida and Caribbean Inventory and Monitoring program records marine debris on all Roving Visual Fish Count surveys in the U.S. Virgin Islands parks

(FY 2019) and South Florida (FY 2018). They record information for the following data fields: live trap, fishing debris, fishing, other, none. They alerted park staff about the location of a large commercial shrimp trawling net.

National Oceanic and Atmospheric Administration

The MDP initiated the Marine Debris Monitoring and Assessment Project (MDMAP) to monitor and assess shoreline sites in regions impacted by debris generated by the 2011 Tōhoku earthquake and tsunami in Japan. The MDMAP has since grown into a citizen science initiative that engages NOAA partners and volunteers across the nation to survey and record the amount and types of marine debris on shorelines. Each passionate and dedicated partner in the MDMAP network selects a nearby shoreline monitoring site that they return to monthly to conduct surveys and submit meaningful data to the MDMAP Database.²⁰

The MDMAP now includes over 400 sites in 20 states (Alaska, Alabama, California, Delaware, Florida, Hawaii, Louisiana, Massachusetts, Maryland, Maine, Michigan, Mississippi, North Carolina, New Jersey, Ohio, Oregon, South Carolina, Texas, Virginia, and Washington), as well as sites in Puerto Rico, American Samoa, Canada, Mexico, Malaysia, the Bahamas, the Federated States of Micronesia, Ecuador, Tonga, Palau, and Costa Rica. The project has recorded data on over 4,000 survey events and over 800,000 individual items, and several papers have been published that document data trends and findings. The MDP also conducts outreach to promote the MDMAP.

The MDP also supports other efforts to monitor marine debris. Through the Joint Institute for the Study of Atmosphere and Ocean (a NOAA Cooperative Institute), the MDP funded a collaborative project with the University of Washington, Coastal Observation and Seabird Survey Team to design and implement controlled field trials and protocol iterations of the MDP standing stock shoreline monitoring protocols to inform protocol adjustments and training improvements in order to reduce elements of bias found in the current protocols.

In a collaboration with the NOAA Great Lakes Mussel Watch Program, the MDP funded Loyola University to analyze invasive mussel samples, collected during regular Great Lakes Mussel Watch Program sampling in the Milwaukee Estuary, for microplastics in order to understand the distribution and abundance of microplastics in the area, and evaluate whether this species could serve as a biomonitor for microplastics in the Great Lakes.

The Commonwealth Scientific and Industrial Research Organisation carried out a rigorous statistical analysis of marine debris shoreline monitoring datasets from the Ocean Conservancy and the MDP. Through modeling, this project identified geographic patterns and trends in marine debris distribution, assessed marine debris management actions, and produced recommendations to improve marine debris monitoring protocols. From this in-depth analysis, it was estimated that at any given moment, there are between 20 million and 1.8 billion marine debris items along the shoreline of the continental

²⁰ <https://mdmap.orr.noaa.gov/login>

United States, with marine debris hotspots found on shorelines in the Gulf of Mexico, California, and in the Mid-Atlantic. Analysis of NOAA's data showed that container deposit legislation for plastic bottles in Hawaii, Oregon, and California was effective in reducing the amount of plastic bottles found on the shorelines of those states.

U.S. Coast Guard

USCG utilizes a number of technologies for the improved identification and monitoring of abandoned marine contraband. These include markers, beacons, and data buoys that communicate with Iridium and SPOT satellites, which offer near global coverage.

The USCG Research and Development Center has worked on various Global Positioning System and Automatic Identification System-based tracking technologies that could be used by USCG air and surface assets. The Research and Development Center has developed a low cost Maritime Object Tracker Technology and has received USCG Aircraft Configuration Control Board level one certification for it to be used on USCG MH-65 helicopters. This technology has limited battery life (approximately 24 hours) and has been developed to mark jettisoned contraband during counter-narcotic pursuits, or for other short-term object tracking uses. Visual markers have been developed and used by the USCG to mark abandoned or derelict objects, some of which may be deployed from helicopter. Much of the USCG efforts are part of the USCG's Maritime Domain Awareness responsibilities but they could be expanded to include the tracking of vessels or objects that could become a hazard to navigation.

6.3: The IMDCC should convene a special session at least once a year to share and discuss the latest research findings on marine debris, with summaries and identified gaps to be passed to the Subcommittee on Integrated Management of Ocean Resources and the Joint Subcommittee on Ocean Science and Technology.

In FY 2018 and FY 2019, the IMDCC did not share and discuss research findings with the Subcommittee on Integrated Management of Ocean Resources and the Joint Subcommittee on Ocean Science and Technology since these structures no longer exist.

The IMDCC did work to meet the intent of this recommendation, including facilitating the sharing of research activities among IMDCC members at regular IMDCC meetings and engaging with interagency Administration committees established subsequently. The Ocean Science and Technology Committee reports to the Ocean Policy Committee and serves a similar function as the committees noted in the recommendation. The IMDCC contributed to the report, *Science and Technology for America's Oceans: A Decadal Vision*, published by the Subcommittee on Ocean Science and Technology Committee on Environment of the National Science and Technology Council, published in November 2018.

6.4: Federal agencies, coordinating through the IMDCC, should sponsor and conduct research regarding the attitudes and practices of users of products that contribute to marine debris. In particular, such research should (a) investigate the willingness to alter attitudes and practices in a manner that would reduce marine debris; (b) identify

preferences with regard to potential incentive programs and which types of incentives are most likely to produce positive responses; and (c) develop and test incentive programs intended to alter attitudes and/or practices among users of products that contribute to marine debris.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Environmental Protection Agency

The TFW program has addressed these issues to a limited degree. For example, the EPA Gulf of Mexico Program Division has awarded a grant to Mississippi State University to carry out a marine debris education and engagement initiative with fishers. Project goals include: 1) establish an incentive program to encourage proper disposal of marine debris; 2) recruit and train commercial fishing crews to collect data on marine debris; 3) develop public service announcements focused on the impacts of marine debris to fishers; and 4) complete assessments on the amount of marine debris found on barrier island beaches. The project will characterize and reduce marine debris in the Mississippi Sound, educate fishers on debris removal and prevention, and evaluate the economic impact of marine debris on commercial fishers.

National Oceanic and Atmospheric Administration

The MDP addressed the issues identified in this recommendation through the funding it provides for Prevention Grants. For example, in a project that was completed in FY 2018, the City of Cleveland Mayor's Office of Sustainability, worked with partners to conduct research on social barriers to reduce the use of single-use plastic water bottles and plastic grocery bags, which are common debris items in the city. Researchers found that the most common reason people do not choose reusable bags and bottles is that they simply forget them. Working with this knowledge, a pilot social marketing campaign was developed and implemented, titled "Don't Break the Lake." Through this project, signage was placed in a local grocery store, window clings were distributed for in-car reminders, and water refill stations were made available at public events. Results indicated that the number of reusable bags being used in the grocery store increased as a result of the campaign. For more information on prevention projects, refer to Section V. B.

U.S. Agency for International Development

Through its MWRP, USAID supported pilot projects that promote behavior change needed to reduce ocean plastics. For example, in the Philippines, USAID-supported projects are implementing and scaling innovative zero-waste approaches to solid waste management and piloting packaging-free convenience stores to test new approaches for product delivery that reduce plastic waste. USAID has produced in-depth case studies that examine how two of USAID's grants in Vietnam have addressed plastic pollution by changing relevant human behaviors, gather insights on how context has supported or impeded behavior change goals, and document lessons that can inform future programs. USAID grantees have engaged more than 90,000 youth to prevent ocean plastic pollution

and trained 150,000 households and establishments to support recycling through practices such as segregation of waste.

U.S. Coast Guard

The USCG Marine Safety Center conducts equipment evaluations and issue approvals, called type approvals, for waste management equipment developed by private companies. These Shipboard Incinerators type approval certification processes must comply with 46 CFR 63.25-9 and/or the latest IMO Res. 244(66), all towards emission standards.

USCG would support coordination through the IMDCC for additional research and incentives.

Topic 7. Technology Development

7.1: Federal agencies should partner with state, local, tribal, and non-governmental entities to encourage the development of specific technologies that could prevent or reduce the amount of debris entering the marine environment or that could mitigate the impacts of marine debris on navigation, human health and safety, the economy, habitats, and species.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

In FY 2018 – FY 2019, DOS supported innovative technologies and approaches to combatting marine debris through our grants. This includes grantee World Wildlife Fund-Hong Kong, who developed a project titled, “All Hands on Deck - A Community-Based Marine Litter Reduction Programme,” which conducted three coastal cleanup activities, three community fora, selected three types of alternative fish boxes to be tested by the fishing industry to reduce polystyrene marine debris, and engaged the major players (including fishery and seafood industries, and manufacturers of boxes) to obtain support to change from polystyrene to alternative boxes.

Another grantee, The Global Knowledge Initiative, developed a project called “Building Ecosystems to Reduce Waste in Our Oceans - Ocean Plastic Prevention Incubators.” The Global Knowledge Initiative, and subgrantees SecondMuse and Circulate Capital, aim to reduce marine debris by building effective waste management and plastic recycling economies in Indonesia and the Philippines. The grantees have drafted three case studies and one policy guideline; hosted a workshop that led to the establishment of a stakeholder meeting forum; planned a public Plastics Festival in Surabaya to raise awareness; and built a database of more than 200 waste and recycling operators and potential partners.

Environmental Protection Agency

The TFW program supports the installation of innovative technologies and approaches through place-based initiatives. For example, the TFW program has provided financial or

technical assistance for in-stream trash capture devices in Mobile Bay, the Proctor Creek watershed (in the Atlanta area), Washington, DC, and St. Louis.

National Oceanic and Atmospheric Administration

Through the Fishing for Energy partnership, the MDP funded work to develop innovative gear technologies and modifications to prevent the loss of fishing traps and to prevent traps from continuing to catch wildlife – or ghost fish – if they are lost. Project profiles can be found on the National Fish and Wildlife Foundation website.²¹ The MDP is also beginning to test and use remote-operated technology in marine debris efforts, including a funded project²² in Aleut Community of St. Paul Island, Alaska that will use aerial surveys to identify marine debris along the shorelines for cleanup.

U.S. Coast Guard

USCG supports technology development, including use of innovative new technologies for waste management and on-board treatment, such as pulpers and incinerators, as well as exhaust gas treatment (scrubber) technology and alternative fuels such as liquefied natural gas.

7.2: Federal agencies should support research, technology development, and use of materials that will not persist in the marine environment.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Environmental Protection Agency

EPA has funded or conducted a number of research efforts related to plastics in the marine environment over the years (refer to Recommendation 6.1).

EPA has also very recently funded two new microplastics characterization technologies through its Small Business Research Innovation Program.

In addition, the TFW program frequently advertises technology development and research- and innovation-related grant funding opportunities in The Flow newsletter.

National Oceanic and Atmospheric Administration

Through the *Fishing for Energy* partnership, the MDP funded work to develop innovative gear technologies and modifications to prevent the loss of fishing traps and to prevent traps from continuing to catch wildlife – or ghost fish – if they are lost. In FY 2018, the *Fishing for Energy* partnership funded a project with the College of William and Mary and Virginia Institute of Marine Science to reduce the ecological and economic impacts associated with lost gear in coastal Washington and Alaska. The project incorporates an innovative bio-hinge mechanism into Dungeness crab traps, testing an effective, inexpensive mechanism to disarm derelict traps.

²¹ <https://www.nfwf.org/sites/default/files/fishingforenergy/Documents/2019grantslate.pdf>

²² <https://marinedebris.noaa.gov/removal/communities-work-remove-marine-debris-pribilof-islands-alaska>

Theme 4: Cross-theme Efforts to Foster Coordination

Topic 8. Fostering Coordination

8.1: Federal agencies should help sponsor and participate in workshops, conferences, and lectures that address issues related to marine debris and sources of marine debris to encourage the exchange of information that can inform the development of guidelines and implementation of actions to mitigate marine debris impacts.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

In FY 2018, a Chinese delegation from Xiamen, Weihai, and the State Oceanic Administration met with city, NOAA, and EPA officials in New York City, Chicago, and San Francisco. In the same year, a U.S. delegation composed of DOS, EPA, NOAA, and the New York City Department of Environmental Protection officials visited Beijing, Xiamen, and Weihai. DOS will facilitate future engagements and the development of a set of recommendations for solid waste management and marine debris prevention. DOS has been actively highlighting the problem of marine litter at events around the world, especially in the major source countries in Southeast Asia. DOS worked with our missions in Jakarta, Indonesia to collaborate with the Indonesian and New Zealand Governments in co-hosting an APEC-East Asia Summit conference in Bali, Indonesia, in FY 2018 to build political support for national and regional action to combat marine debris.

Environmental Protection Agency

The TFW program participated in a significant number of workshops, conferences, and summits directly related to marine debris. Members of the TFW team presented at a number of these events in order to share technical expertise on microplastics research, data collection methodology, the stormwater nexus for trash getting into waterways, and more with others in the field. Audience members, including scientists, tribal government representatives, resource managers, community and business leaders, policy makers, educators, and students, used this opportunity to learn from TFW subject matter experts about the latest scientific research in the field and to guide future actions for protecting and restoring our nation's waterways.

One example is the 6IMDC, where three TFW team members presented a poster on citizen science trash assessment methodology. The following year, a TFW coordinator served as co-chair for a session on waste prevention and plastics in the Salish Sea watershed at the 2019 Salish Sea Ecosystem Conference. They gave a presentation titled, "Toward a Standard Trash Assessment Method," discussing the significance of the EPA's draft Escaped Trash Assessment Protocol as a comprehensive citizen science-based data collection tool.

During FY 2018, TFW served on the Planning Committee for Zero Waste Washington's First Annual Plastics Summit. In both 2018 and 2019, an EPA representative attended the Stormwater and Litter Stakeholder Summit Meeting for Virginia communities hosted by Longwood University and helped with agenda development beforehand. The 2019 one-day workshop for stormwater professionals addressed urban trash pollution and strategies employed to intercept a piece of trash before it becomes part of stormwater runoff and conveyed to and through the storm sewer system via storm drains.

The TFW program also participated in the Partnership for the Delaware Estuary's biannual 3-day "Science & Environmental Summit" conference. The 2019 summit theme was "Saving Our System Through Collaboration" and included a focus on trash reduction efforts. Conference sessions and panel talks covered a variety of marine debris-related topics, including monitoring, quantifying, mapping, and preventing trash in the watershed. A TFW regional coordinator presented on the interception of trash as a subset of marine debris prevention and provided case studies on what Region 3 is doing to address the issue.

National Park Service

The NPS in Alaska has participated in multiple forums to discuss marine debris related issues, including the Alaska Forum on the Environment.

The NPS Pacific West regional Ocean & Coastal Coordinator regularly attends meetings and conferences about marine debris and collaborates with state and local officials on planning documents and outreach.

National Oceanic and Atmospheric Administration

In March 2018, the MDP co-hosted the 6IMDC with the United Nations Environment Programme (UN Environment) in San Diego, California.²³ NOAA has hosted all six of these critical events, dating back to 1984, which are the premier forum for the global community to convene and comprehensively discuss and share information on all aspects of the issue, from the state of science and knowledge on the issue, to innovative solutions. The 6IMDC included over 700 participants from 54 countries across the globe. Discussions focused on and encouraged innovation, collaboration, and action, and highlighted marine debris solutions, research, and technological advances and discussions on strategies to minimize the impacts and occurrence of marine debris.

The MDP facilitates the development of marine debris action plans in partnership with state and local agencies, tribes, NGOs, academia, and industry. The development and implementation of marine debris action plans encourage the exchange of information on marine debris sources and mitigates marine debris impacts. For more information on marine debris action plans, refer to Section V. F.

U.S. Agency for International Development

During FY 2018 – FY 2019, USAID shared the lessons learned from its marine debris projects in various national, regional, and international forums, such as with the APEC

²³ <http://internationalmarinedebrisconference.org/>

Fisheries and Chemical Working Groups, the Central America Free Trade Agreement-Dominican Republic workshop on marine debris, and the Our Oceans Conference. USAID also supported its grantees to participate in such events, resulting in several notable successes, such as USAID grantees in Vietnam informing the development of the country's "National Action Plan on Marine Plastic Debris."

U.S. Coast Guard

USCG is a contributing agency as part of the U.S. delegation to the Arctic Council working group for PAME, which focuses on many environmental conservation efforts within the Arctic. USCG belongs to the Shipping Expert Group workgroup within PAME. Therefore, any commercial vessel activities that USCG regulates or enforces on a regular basis (garbage, sewage, plastics) would also be enforced within the Arctic region. Future regulatory efforts to protect the Arctic marine environment are expected to increase in response to increased commercial vessel shipping within Arctic waters.

In addition to participating in workgroup activities as a member of the U.S. delegation, USCG has supported PAME in developing the Arctic Shipping Status Report.²⁴ While the ASTD does not currently have the marine litter and plastics layer in operation, it is an item that the experts group put before PAME plenary as a phase III delivery. This was not put into the work plan at the last PAME meeting but will be a topic of discussion and hopeful decision at PAME II 2020.

8.2: Federal agencies should participate in ongoing international activities to mitigate the impacts and reduce the amount of marine debris. Federal agencies also should support efforts to increase the awareness of such international marine debris efforts and encourage participation of other nations and international organizations in those efforts, as well as consider options for new international activities and initiatives to mitigate the impacts and reduce the amount of marine debris.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of Justice

Attorneys from ENRD work with INTERPOL's Pollution Crime Work Group on a variety of activities to mitigate the impacts and reduce the amount of marine debris. For example, the Pollution Crime Work Group's Project Maritime Pollution focuses on the international and growing threat of marine pollution, including illegal discharges of garbage and other debris from vessels. The Deputy Chief of ENRD's Environmental Crimes Section served as the Chair of the Pollution Crime Work Group during the reporting period.

Department of State

DOS leads interagency coordination efforts for the Our Ocean conference each year. This includes soliciting and compiling announcements for the conference and coordinating and leading the U.S. delegations to the conference. Marine pollution,

²⁴ <https://www.pame.is/projects/arctic-marine-shipping/arctic-shipping-status-reports>

including marine debris, is one of the primary focus areas of the conferences. DOS Bureau of Oceans and International Environmental and Scientific Affairs (OES) Acting Assistant Secretary, Judith G. Garber, led the U.S. delegation to the 2017 conference October 5-6 in Malta. The bulk of U.S. preparations for the conference occurred in FY2017, but the event itself occurred in FY 2018. At the Malta conference, the United States announced 12 new initiatives totaling up to \$75 million, including commitments related to marine debris.

During FY 2018, DOS coordinated interagency preparations for the 2018 conference in Indonesia. The conference itself occurred in October 2018, in FY 2019. OES Principal Deputy Assistant Secretary, Judith G. Garber, led the U.S. delegation to the Indonesia conference, at which the United States announced 15 new commitments worth approximately \$60.7 million, including commitments related to marine debris. During FY 2019, DOS coordinated interagency preparations for the 2019 conference in Norway. The conference itself occurred in October 2019, in FY 2020. At the 2019 conference, Under Secretary of State for Economic Growth, Energy, and the Environment, Keith Krach, announced the United States' 23 new commitments valued at 1.21 billion dollars to promote sustainable fisheries; combat marine debris; and support marine science, observation, and exploration.

In FY 2018, our embassy in Bangkok engaged robustly in Thailand to host an Association of Southeast Asian Nations marine litter conference in Phuket, Thailand aiming to develop a regional action plan to combat marine debris. DOS was also instrumental in the development of Germany's 2017 Group of 20 Action Plan on Marine Litter and in the development of Japan's Group of 20 Blue Ocean Vision 2050, which aims to reduce pollution into the marine environment by plastic litter to zero by 2050. DOS regularly engages in meetings on marine debris in the Arctic Council, United Nations, Group of 7, Group of 20, APEC, Association of Southeast Asian Nations Regional Forum, IMO, and more.

Environmental Protection Agency

EPA engages actively in international initiatives to address marine trash in the ocean. International TFW work includes support for U.S. Government engagement in many bilateral and multilateral settings, including the IMDCC, Our Ocean conferences, Group of 7 and Group of 20 dialogues, UN Environment initiatives, APEC, collaborative projects with China, Peru, Panama, and Jamaica, and much more.

In 2018, EPA's Office of International and Tribal Affairs assisted with a project to install a trash boom in Panama City to prevent the flow of upstream trash into the bay. Monitoring and educational efforts were focused on upstream communities to help bring awareness to the issue of inland sources of marine litter. On World Ocean Day 2019, the Office of International and Tribal Affairs announced a solid waste reduction project in Jamaica's Bluefields and Whitehouse communities. This pilot project brings stakeholders together to identify priority needs and develop projects to reduce and prevent land-based trash from entering watersheds, coastal waters, and the marine environment. The campaign slogan, "If you can't re-use it, please refuse it," was used to encourage residents

to recognize how their individual actions add up. Citizens of both Bluefields and Whitehouse in Westmoreland participated in a beach cleanup in commemoration of World Ocean Day.

National Park Service

The NPS in Alaska continues to offer recommendations as requested to support a PAME Working Group marine debris project.

National Oceanic and Atmospheric Administration

The MDP participates in ongoing international activities to mitigate the impacts and reduce the amount of marine debris. The MDP works closely with DOS and other U.S. national agencies to support U.S. government engagement in many international fora, including the United Nations Environment Assembly, APEC Ocean and Fisheries Working Group, the Arctic Council, Global Partnership on Marine Litter, Global Ghost Gear Initiative, the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection Working Group 40, and others. For more information on the MDP's international activities, refer to Section V. G.

U.S. Agency for International Development

Between FY 2018 – FY 2019, USAID implemented a number of programs to address marine debris internationally. The MWRP, launched in 2016, has supported 30 locally-led projects with innovative, local, and sustainable solutions to reducing ocean plastic waste in four out of the top five contributing countries: Indonesia, Philippines, Sri Lanka, and Vietnam. Grants focus on multiple aspects of improving municipal solid waste management to reduce plastic waste entering the environment, while engaging a broad range of stakeholders. The program is capturing lessons learned and developing case studies from its successful projects to inform future local, national, and international efforts.

In June 2019, USAID launched a blended-finance partnership with Circulate Capital. USAID funding helps provide a 50-percent loan guarantee for a \$35 million loan portfolio of Circulate Capital, which is part of a \$106 million investment strategy funded by multinational companies including PepsiCo, Dow, Danone, P&G, Unilever, and Coca Cola. Circulate Capital, an innovative catalytic investor, is making investments in the recycling value chain in countries of South and Southeast Asia.

In August 2019, USAID launched Clean Cities, Blue Ocean, its 5-year, \$48 million global, flagship program, to expand our work in Asia and extend our activities to other regions. Clean Cities, Blue Ocean is currently working in seven countries (Dominican Republic, Indonesia Maldives, Peru, Philippines, Sri Lanka, and Vietnam). In addition to providing grants to local organizations for fostering social behavior change and building local capacity for solid waste management and recycling, Clean Cities, Blue Ocean is providing specialized technical expertise to enable private sector investment in infrastructure, greater transparency, and improved local enforcement of regulations. Clean Cities, Blue Ocean is engaging with the private sector at local, national, and global levels and aims to leverage significant external resources.

U.S. Coast Guard

USCG participates as the Head of Delegation to IMO and at the International Organization for Standardization (ISO) on the development of international regulations and implementing guidelines, as well as ISO standards that provide operational guidance for all maritime stakeholders. Such ISO standards include specific guidance for ship operators and port and terminal operators aimed at managing shipboard wastes and preventing those wastes from entering the marine environment as marine debris.

USCG participates in workshops, conferences, taskforces, and interagency and international efforts that address MARPOL Annex V and related pollution prevention issues, including those aimed at reducing and eliminating marine debris, plastics, and microplastics in the ocean environment.

Chief among these efforts is as a member of the IMO Marine Environmental Protection Committee (MEPC) and Pollution Prevention and Response (PPR) Sub Committee Meetings. In 2018, the USCG attended MEPC 72 and 73, and PPR 5. In 2019, the USCG attended Marine Environmental Protection Committee 74 and Pollution Prevention and Response 6.

USCG is a member of the Arctic Council PAME Working Group. USCG participated in the 2019 PAME meeting.

USCG attended the 2019 Secretariat of the Pacific Regional Environment Programme meeting, which included agenda items for preventing marine debris.

The total USCG budget commitments between 2018 and 2019 to attend and be an active member agency at international conferences with a mission to reduce marine debris was approximately \$150,397.

8.3: The IMDCC should serve as a central point for coordination of Federal efforts to develop new policies, strengthen existing policies, identify new research topics or projects, and address requests from Congress for specific information or actions related to marine debris.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

The IMDCC holds four meetings per year, with participation from agencies named in 33 U.S.C. 1954, as well as other interested Federal agencies. During meetings, attending agencies provide updates on their marine debris activities and share relevant information, including research priorities, outcomes of funded projects, and upcoming opportunities for collaboration. The IMDCC also facilitates interagency coordination outside of regularly scheduled meetings, as appropriate. For example, the MDP coordinated the IMDCC's contributions to the report, *Science and Technology for America's Oceans: A Decadal Vision*, published by the Subcommittee on Ocean Science and Technology,

Committee on Environment of the National Science and Technology Council, published in November 2018.

Department of State

DOS has actively participated in almost all of the IMDCC meetings and regularly shares the breadth and depth of diplomatic and programmatic engagements DOS is involved in with the IMDCC. DOS coordinates efforts closely with the other members of the IMDCC, including NOAA, EPA, and others, in the development of international engagements and policies to guide U.S. activities on marine debris.

National Oceanic and Atmospheric Administration

The MDP chairs the IMDCC and serves as Executive Secretariat, working to ensure that the IMDCC serves as a central point for coordination of Federal efforts to develop new policies, strengthen existing policies, identify new research topics or projects, and address requests from Congress for specific information or actions related to marine debris.

8.4: Federal agencies should pursue partnerships, as appropriate, with non-governmental entities to develop, promote, and implement strategies for preventing, reducing, or mitigating the impacts of marine debris.

This recommendation was effective in guiding Federal agency efforts to address marine debris.

Department of State

In FY 2018 – FY 2019, DOS grantee 5 Gyres conducted a project titled, “Asia Pacific Action Against Plastic Pollution: Reducing land-based leakage of plastic waste in the Philippines & Indonesia through zero waste systems and product redesign,” securing signed agreements with local governments and training local officials, including over 600 participants from more than 80 cities.

Additionally, grantee Marviva implemented the project titled, “Empowering coastal cities and local governments in Costa Rica and Panama to combat marine litter through refusal of single-use plastics and improvement of waste management systems,” which aimed to achieve measurable reduction of plastic waste entering the marine environment through implementation of waste management systems focused on showcase coastal cities in Costa Rica and Panama. Marviva provided six coastal cities technical advice for waste reduction; trained 225 municipal officers; developed three municipal government solid waste management plans; and executed a public information plan to alter behaviors that lead to marine debris through in-person events, social media, television, press notes, interviews, and outreach messages targeted at commercial partners, other local stakeholders in coastal areas, and students. To date, the campaign has reached roughly 1.9 million people.

DOS plans to continue to seek out relevant partnerships with NGOs in FY 2020 and beyond to address the drivers of marine debris.

Environmental Protection Agency

This is a core part of EPA's place-based project work. For example, EPA provided support for the "Stopping Trash Where It Starts" campaign in New York. Project partners included the New York-New Jersey Harbor & Estuary Program (a National Estuary Program), the Hudson River Foundation, and Montclair State University's Passaic River Institute. A total of 35 locations were surveyed and data was collected on types and sources of litter. Single-use consumer products were the most common items found, therefore informing target reduction strategies. Reusable tote bags, bottles, and straws were purchased and distributed throughout the watershed at community outreach events to encourage source reduction. The project is expected to be expanded to advance community efforts to reduce single-use plastics in all study areas in the Passaic, Bronx/Harlem, and Hackensack watersheds.

Patapsco Latino Action Network was awarded an Environmental Justice grant to develop Spanish-language marine debris outreach materials and to engage residents in close proximity to the impaired Patapsco River branch of Baltimore Harbor. Additional project activities included organizing several cleanups and neighborhood beautification events and surveying community members on perceptions of marine debris and other environmental issues. This insight will be used to develop a Marine Debris Mitigation Action Plan for the watershed.

The EPA has financially supported the Bronx River Alliance, an Urban Water Federal Partnership program partner, which has served as a coordinated voice for the Bronx River for a number of years. The Bronx River Alliance's Project WASTE (Waterway and Street Trash Elimination) initiative addresses floatable trash, one of the three major water quality impairments to the Bronx River, through hands-on data collection and assessment, source detection, and student-driven community outreach and education along the Bronx River, a major subwatershed of Long Island Sound. Floatable trash assessments were conducted at trash collection booms and accumulation hotspots to help inform management actions. By engaging more than 1,300 students, educators, and interested residents, the Bronx River Alliance has removed over 200,000 items, weighing over three tons, from the Bronx River.

National Oceanic and Atmospheric Administration

The MDP provides funding for Prevention Grants, including projects that work with NGOs to develop, promote, and implement strategies for preventing, reducing, or mitigating the impacts of marine debris. For more information, refer to Section V. B.

U.S. Agency for International Development

During FY 2018 – FY 2019, USAID continued to develop partnerships with both NGOs as well as the private sector – globally, regionally, and at the local level – in each of USAID's target countries. USAID's MWRP has supported 30 projects led by local NGOs, implementing innovative, local, and sustainable solutions to reducing ocean plastic waste in Indonesia, Philippines, Sri Lanka, and Vietnam. These grantees have in turn engaged their local private sector counterparts. For example, in Sri Lanka, USAID grantee, the Ceylon Chamber of Commerce, has created a steering committee of

government, private sector, and civil society representatives to create studies to inform national policy dialogue on managing post-consumer plastic waste. USAID grantee Divers Clean Action has partnered with Danone and H&M to purchase recyclable materials collected in Indonesia's Thousand Islands.

In June 2019, USAID launched a blended-finance partnership with Circulate Capital. Refer to Recommendation 8.2 for more information.

U.S. Coast Guard

USCG Marine Safety Center conducts equipment evaluations and issue approvals, called type approvals, for waste management equipment developed by private companies. These Shipboard Incinerators type approval certification processes must comply with 46 CFR 63.25-9, which implements IMO MEPC.76(40), all towards emission standards. In general, the USCG coordinates IMO and ISO activities across U.S. agencies, including the IMDCC as appropriate, and with its international partners.

U.S. Navy

The Navy is a member of the Gulf of Mexico Alliance, which engages and partners with Federal, state, and local agencies, as well as NGOs, to engage in conservation and marine debris efforts. The Gulf of Mexico Alliance has a Priority Implementation Team solely for marine debris actions, research, and prevention. The Navy also works on environmentally responsible practices through partnerships such as the Chesapeake Bay Program and others throughout the nation.

IV. NOAA SUMMARY OF MARINE DEBRIS INVENTORY

In June 2013, the MDP launched the Marine Debris Clearinghouse, an online database that serves as the Federal Government's information hub for marine debris stakeholders.²⁵

The site provides users access to specific information about, and environmental data from ongoing and historical marine debris removal, research, and outreach projects. This resource is available to all interested members of the general public, coastal managers, researchers, and local communities to support their efforts to study and mitigate marine debris and its impacts.

The MDP launched the redesigned and redeveloped Marine Debris Clearinghouse at the end of FY 2019. The new Clearinghouse platform, built off of an existing data platform, includes updated and expanded capabilities for direct data discovery and accessibility, making project results, outputs, and products more readily accessible by the public. This aligns with the direction of Federal and NOAA data management requirements and best practices. Coupled with an updated user interface and expanded data visualization features, the new site provides users inside and outside of NOAA with information more rapidly and more intuitively. The MDP will continue to evaluate the site for iterative improvements and development in the coming years.

²⁵ <https://clearinghouse.marinedebris.noaa.gov/>

V. REVIEW OF THE NOAA MARINE DEBRIS PROGRAM

A. Program Administration and Structure

The MDP is the Federal lead on efforts to research, prevent, and reduce the adverse impacts of marine debris. The program spearheads research efforts and provides nationally competitive funding opportunities for marine debris removal, research, and prevention projects. The MDP has staff strategically located across the country to lead region-specific approaches to addressing marine debris through partnerships with state and local agencies, tribes, NGOs, academia, and industry.

The MDP was originally authorized by Congress in 2006 through the Marine Debris Research, Prevention, and Reduction Act, which was amended in 2012 and 2018. Under the amended Marine Debris Act, the program is mandated to lead national and regional coordination, and to assess, research, prevent, reduce, and remove marine debris. In October 2018, the President signed the Save our Seas Act of 2018 (Public Law (P.L.) 115-265). This law amends and reauthorizes the Marine Debris Act for 4 years, directs NOAA to promote international action, as appropriate and in consultation with other agencies, to reduce marine debris in our ocean, and updates the membership of the IMDCC. Recognizing the growing need to address the unusual amounts and types of marine debris following events such as tsunamis or hurricanes, and NOAA's critical role in responding to these events, the Save our Seas Act of 2018 also authorizes cleanup and response actions. Additionally, the Act authorizes and requires NOAA to work with other Federal agencies to develop additional outreach and education strategies to address sources of marine debris.

These mandates and authorities are the foundation for the five pillars of the MDP: prevention, removal, emergency response, research, and regional coordination.

In FY 2018 and FY 2019, the MDP continued to support activities across the country in each of the five program pillars and to address the adverse impacts of marine debris on the marine environment, navigational safety, human health, and the U.S. economy. In addition to addressing marine debris on a national scale, the MDP has assumed a leading role in the global effort to combat marine debris by convening experts and promoting information-sharing.

B. Prevention

Marine debris prevention activities are a crucial aspect of the MDP. A robust education and outreach initiative has been developed to educate the public, especially youth, about the causes and impacts of marine debris, and to motivate attitude and behavior changes that result in the prevention and reduction of marine debris.

The MDP conducts education and outreach directly with the public across the country and through regional partners supported largely through competitive funding opportunities such as the MDP's Prevention Grant funding opportunity. In FY 2018 –

FY 2019, the MDP reached 25,573 students and teachers and 18,300 members of the public.

All 10 regions of the MDP participate in school education programs, lead teacher workshops, conduct outreach at events, and engage with local stakeholders. In addition, MDP produces education and outreach materials such as fact sheets, posters, activity books, and curricula to assist with reaching these audiences. These materials are readily available and accessible for public use. The MDP holds an annual national art contest for K-8th grade students. Hundreds of student artworks are submitted each year, and 13 entries are selected for inclusion in the annual MDP calendar. The MDP has also installed educational displays at national marine sanctuaries and National Estuarine Research Reserves around the country. In FY 2019 the MDP started two new educational displays in partnership with the Mission-Aransas and Rookery Bay National Estuarine Research Reserves.

In addition to regional education and outreach efforts, the MDP has an extensive digital communications strategy. The MDP provides original content through its website, blog, monthly e-newsletter, quarterly educator e-newsletter, and social media platforms, which include Facebook, Twitter, Instagram, and Flickr. In FY 2018 – FY 2019, the MDP published 139 blog posts with 97,334 views and the website had 496,606 sessions/visitors.

Every other year, the MDP supports partnership projects through its Prevention Grant funding opportunity. The intent of these partnerships is to change, in measurable ways, those specific behaviors that lead to litter and marine debris in coastal communities throughout the United States and territories. In FY 2018, the MDP provided \$1.07 million to 11 projects that focused on a diverse set of strategies for preventing marine debris. This includes developing education programs and anti-litter campaigns targeting students of all ages, tourists, and the general public; installing water bottle filling stations at a state park; implementing student education programs; and social marketing and awareness campaigns. For a complete list of prevention projects awarded in FY 2018, please see the MDP Prevention webpage²⁶ or the Marine Debris Clearinghouse.²⁷

The MDP also supports prevention projects through the Fishing for Energy partnership. Since launching in 2008, Fishing for Energy has processed more than 4.8 million pounds of old fishing gear from 55 fishing communities across the Nation, a portion of which has been retrieved directly from the ocean by fishers. Installation of a derelict fishing gear collection container in a new port is coupled with outreach to the fishing community, and a community event with fishers, local officials, media, and often, representatives of the state's congressional delegation.

C. Removal

²⁶ <https://marinedebris.noaa.gov/current-efforts/prevention>

²⁷ <https://clearinghouse.marinedebris.noaa.gov/>

While prevention is essential to stemming the input of new debris into the ocean, removal is necessary to diminish the impacts of debris already introduced into the ocean and Great Lakes. Each year, the MDP supports locally driven Removal Grants. The program also provides support to the annual International Coastal Cleanup.

Through the MDP's Removal Grant funding opportunity, the MDP has funded over 165 projects and has removed over 17,400 metric tons of marine debris from the coastal United States and territories. In FY 2018 and FY 2019, the program provided over \$2.9 million to support 22 organizations in 15 coastal states and U.S. territories on projects ranging from community cleanups, crab trap recovery, derelict vessel removal, and more. For a complete list of projects awarded in FY 2018 and FY 2019, please see the Marine Debris Clearinghouse.²⁸

As part of an ongoing effort since 1996, trained NOAA divers with the NOAA Pacific Islands Fisheries Science Center's Ecosystem Sciences Division remove derelict nets and gear each year from the coral reefs and coastlines in the Papahānaumokuākea Marine National Monument. In FY 2018, the effort, funded in part by the MDP, removed nearly 75 metric tons of nets, plastics, and other marine debris from the shorelines and nearshore reefs.

D. Emergency Response to Hurricanes

Marine debris is an everyday problem, but natural disasters have the potential to make it worse. Natural disasters such as hurricanes, tropical storms, tsunamis, floods, and landslides can introduce immense quantities of debris into the marine environment, including large debris items such as furniture, appliances, and even entire homes. The active 2018 hurricane season caused marine debris impacts in the Gulf of Mexico, Southeast, and Pacific Islands regions. The MDP assisted local, state, and Federal partners with the responses to Hurricanes Florence and Michael, and Typhoon Yutu, during the late summer and fall of 2018. In addition, the MDP continued working with coastal states to develop marine debris emergency response guides²⁹ to help local and state officials, along with Federal partners, respond to marine debris events caused by natural disasters and other human-made incidents.

Hurricanes Florence and Michael, and Typhoon Yutu

The 2018 hurricane and typhoon seasons inflicted severe damage to communities and coastal resources across North Carolina, Florida, and the Commonwealth of the Northern Mariana Islands. Hurricanes Florence and Michael, and Typhoon Yutu left a swath of destruction and large amounts of debris in the coastal zones of the affected states and territory. This debris poses hazards to navigation, commercial fishing grounds, and sensitive ecosystems.

The MDP received \$11 million in the Additional Supplemental Appropriations for Disaster Relief Act, 2019 (P.L. 116-20) to remove marine debris from communities

²⁸ <https://clearinghouse.marinedebris.noaa.gov/>

²⁹ <https://marinedebris.noaa.gov/emergency-response/marine-debris-emergency-response-guides>

impacted by Hurricanes Florence and Michael, and Typhoon Yutu. In partnership with NOAA, the National Fish and Wildlife Foundation is administering the Hurricane Response Marine Debris Removal Fund. These grant awards from the Fund are supporting projects that assess, remove, and dispose of marine debris that was caused by or moved by the storms.

The selected projects included marine debris assessment, removal, and disposal activities within the coastal uplands, shorelines, and coastal waterways of the affected areas, with the goal of preventing further harm to economic and ecological resources of importance to impacted coastal resources and communities.

Hurricanes Harvey, Irma, and Maria

The 2017 hurricane season inflicted severe damage to communities and coastal resources across South Carolina, Georgia, Florida, Texas, and the Caribbean. Hurricanes Harvey, Irma, and Maria devastated large portions of the coastal areas of these states and territories, leaving behind a substantial amount of debris, ADVs, DFG, and damaged structures that pose hazards to navigation, commercial fishing grounds, and sensitive ecosystems.

The MDP received \$18 million as part of the Bipartisan Budget Act of 2018 to remove marine debris from communities impacted by Hurricanes Harvey, Irma, and Maria. The MDP awarded the funds to directly support seven grants to the affected states. In FY 2019, work was completed for South Carolina and Georgia, which combined removed over 9,026 metric tons of marine debris, damaged dock structure, and ADVs. The remaining projects are still on-going.

Emergency Response Guides

In 2012, following the back-to-back 2011 Tōhoku earthquake and tsunami and Superstorm Sandy debris events, the MDP was reauthorized through the Marine Debris Act and the MDP's responsibility was expanded to include response to emergency marine debris events.³⁰ The program has been proactive in addressing marine debris emergency response by working with coastal states to develop marine debris emergency response guides. These guides aim to outline existing structures to facilitate coordinated, well-managed, and immediate responses to any natural disaster or event that generates large amounts of marine debris. In FY 2018 and FY 2019, NOAA completed marine debris response guides for Louisiana, Texas, Virginia, and Maryland. The MDP continues the process of developing similar response guides for other coastal states and territories.

E. Research

In FY 2018, the MDP funded two projects investigating various aspects of marine debris monitoring, including the evaluation of shoreline monitoring protocols and the use of bivalves as monitoring tools. A total of \$301,963 was awarded. Detailed information on these projects may be found in the Marine Debris Clearinghouse.³¹

³⁰ Marine Debris Act, 33 U.S.C. § 1951 et seq. (2006), as amended by Title VI of P.L. 112-213.

³¹ <https://clearinghouse.marinedebris.noaa.gov/web/marine-debris-clearinghouse/projects>

In FY 2019, the MDP funded four research projects resulting from the competitive Research Grant opportunity. The priorities for this competition included research that explores the ecological risk associated with marine debris, determines debris exposure levels, and examines the fate and transport of marine debris in nearshore, coastal environments.

The MDP received a total of 48 research proposals, including proposals from all ten of the MDP regions, requesting over \$12 million. The MDP was able to fund four of these projects, totaling \$1.25 million. Detailed information on these projects may be found in the Marine Debris Clearinghouse.

In FY 2019, the MDP published the results of a study³² to look at how the amount of marine debris on beaches can affect the behaviors of beachgoers and as a result, the economies of coastal communities that depend on tourism. Most notably, this study reveals that doubling the amount of marine debris on beaches within these coastal areas would decrease the number of days visitors spend on those beaches. This decline in beach visitor days would result in fewer tourism dollars spent and translate into a decrease in local jobs.

F. Regional Coordination

The MDP is the Federal lead in addressing the national problem of marine debris; however, the types and impacts of marine debris vary by region. As a result, the MDP has a strong regional coordination component to work with local communities to address their region-specific marine debris issues. The MDP has 10 Regional Coordinators working in Alaska, the Pacific Northwest, California, the Pacific Islands, the Gulf of Mexico, Florida and the Caribbean, the Mid-Atlantic, the Northeast, the Southeast, and the Great Lakes. These Coordinators provide technical expertise to partners in their respective regions on marine debris projects, assess regional needs, work with state and local agencies to implement prevention strategies, and act as a hub of information for coastal managers, nonprofits, and other groups interested in addressing marine debris.

Action Plans and Planning Workshops

In FY 2018 and FY 2019, MDP Regional Coordinators worked with partners in several regions and states to initiate and continue the development of regional marine debris action plans to address marine debris. These action plans focus on long-term solutions to the causes and impacts of marine debris in the regions, as well as outline operational best practices and data collection protocols. The purpose of these action plans is to aid states in preventing and reducing debris and mitigating coastal impacts.

The following action plans were published or updated in FY 2018 and FY 2019:

- Oregon Marine Debris Action Plan (published September 2019)
- Southeast Marine Debris Action Plan (published June 2019)

³² <https://marinedebris.noaa.gov/research/economic-impacts-marine-debris-tourism-dependent-communities>

- Hawaii Marine Debris Action Plan (published January 2019)
- Washington Marine Debris Action Plan (published September 2018)
- California Ocean Litter Prevention Strategy (published June 2018)

G. International Coordination

Marine debris is a global issue. It is now ubiquitous in the global ocean and is found on the shorelines of remote tropical islands, in Polar Regions, and floating at the ocean surface, suspended in the water column, or lying on the deepest parts of the ocean floor. It can travel long distances from its source of entry into the marine environment, traversing national boundaries and territorial waters. Furthermore, marine debris is not only an environmental problem, it has social, economic, and political aspects and it can present challenges to global food security, particularly in the developing world.

Effectively addressing marine debris takes a concerted global effort of many stakeholders, from governments, both at the national and local level, to private industry, civil society, academia and research entities, international and regional organizations, the United Nations system, and all members of the public. The MDP plays an important role in providing global leadership on the issue.

There are many international initiatives ongoing to understand and combat the issue of marine debris, and the MDP provides constructive input to some of these efforts. The MDP works closely with DOS and other U.S. national agencies to support U.S. Government engagement in many international fora that are addressing this pressing issue. In FY 2018 and FY 2019, the MDP served on U.S. delegations to several key meetings to provide expertise to address marine debris through policy development and knowledge sharing. These included meetings such as the United Nations Environment Assembly, the APEC Ocean and Fisheries Working Group, the Arctic Council, and others.

The MDP also provides its experience to guide leading global partnerships that are advancing work to reduce marine debris internationally. In FY 2018 and FY 2019, MDP staff served on the steering committees of the Global Partnership on Marine Litter, which is the lead international partnership on the topic overall, and of the Global Ghost Gear Initiative, which is the chief international effort addressing DFG. MDP staff also served as an observer on the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection Working Group 40 that developed the world-renowned Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean,³³ published in January 2019.

MDP staff also engaged directly with foreign governments to offer its insights and experience to apply in other countries. MDP staff presented on marine debris solutions at a May 2019 Association of Southeast Asian Regional Forum workshop on impacts of marine debris on food security as well as an APEC workshop on government response to marine debris and understanding economic costs of debris. In March 2019, MDP staff

³³ <https://marinedebris.noaa.gov/reports/guidelines-monitoring-and-assessment-plastic-litter-ocean>

also provided guidance and lessons learned to government representatives of Central America during a multilateral meeting in March 2019 so they can better address marine debris in their countries. In FY 2019 MDP provided funding to the Ocean Conservancy, a partner international NGO, to support its Urban Ocean Initiative. This important effort is working in key cities in Southeast Asia and Latin America to improve waste management collection systems. The MDP will support the project through FY 2020 as well.

In March 2018, the MDP co-hosted with UN Environment the Sixth International Marine Debris Conference (6IMDC)³⁴ in San Diego, California. NOAA has hosted all six of these critical events, dating back to 1984, which are the premier forum for the global community to convene and comprehensively discuss and share information on all aspects of the issue, from the state of science and knowledge on the issue, to innovative solutions. The 6IMDC included over 700 participants from 54 countries across the globe. Discussions focused on and encouraged innovation, collaboration, and action and highlighted marine debris solutions, research, and technological advances and discussions on strategies to minimize the impacts and occurrence of marine debris.

³⁴ <http://internationalmarinedebrisconference.org/>

VI. REVIEW OF U.S. COAST GUARD PROGRAMS

A. Overview

The USCG continues to play an important role in the prevention and reduction of marine debris. Throughout the FY 2018 – FY 2019 reporting period, USCG sustained its commitment to reducing ship-sourced marine debris through the enforcement of domestic and international laws. In keeping with its core mission of environmental stewardship, USCG assisted its interagency partners in identifying and removing marine debris under its authorities. USCG continued to participate in the U.S. Committee on the Marine Transportation System integrated action teams with its agency partners on Arctic shipping, port infrastructure and pollution prevention, including ship sourced marine debris prevention.

During FY 2018 – FY 2019, the USCG maintained its Certificate of Adequacy (COA) waste reception facilities program and continued its domestic and international outreach efforts with respect to the COA program. USCG's COA program requires compliance with MARPOL regulations by ensuring that adequate reception facilities for ship waste are available to all ships calling at U.S. ports or terminals. USCG provided field units with updated guidance on the importance of the COA program on preventing marine debris and with data obtained from NOAA Marine Fisheries Service, has launched a pilot program ensuring applicable fishing ports provided the required garbage reception facilities for fishing boats.

During the FY 2018 – FY 2019 reporting period, USCG continued to provide leadership at IMO. The work during this period included provisions for protecting the Arctic marine environment from ship-based pollution. For example, in the Polar Code Amendments to MARPOL, USCG articulated some of the unique challenges for the prevention and removal of marine debris in Polar Regions and worked closely with the U.S. delegation to the Arctic Council's PAME Working Group as shipping activity continues to increase.

USCG staff continued its cooperation with international partners on marine environmental protection and continued to chair the ISO work group (ISO/TC8/SC2/WG4) on the development of international standards for management and handling of ship waste. In 2017 and 2018, ISO 21070, international standards on management of shipboard garbage, and ISO 16304, on the arrangement and management of port reception facilities, were published, both standards providing guidance on key areas for reducing and eliminating ship-sourced marine debris. In FY 2018 – FY 2019, WG4, again under USCG leadership, published the revised ISO standard 13617 on operating shipboard waste-treatment equipment (shipboard incinerator standards) and is working on standards specific to the Arctic regarding the arrangement and management of port reception facilities.

USCG continues to support education and outreach to mariners and promote marine debris awareness among the public through its Sea Partners Campaign and USCG Auxiliary outreach program and in partnership with NAMEPA. USCG continues to work

with NAMEPA by providing guest speakers to its industry functions who focused on port reception facility issues and their nexus with marine debris. Additionally, NAMEPA hosted the 2020 biennial USCG Benkert Award, which recognizes domestic and foreign vessel and facility operators in their initiative to reach environmental excellence beyond regulatory compliance.

As mentioned above, USCG is addressing a particular area of concern for the prevention of pollution from ships in Arctic waters. Working with the Arctic Council's PAME Working Group as a member of the U.S. delegation, USCG has assumed a leadership role on managing the operational wastes from ships as commercial shipping in the Arctic increases across all sectors. USCG coordinated a submittal to IMO proposing amendments to MARPOL that would allow for a comprehensive approach to waste management aboard ships and at ports or terminals servicing Arctic-bound ships. A regional waste management approach for the Arctic would enhance efforts to ensure ships can comply with MARPOL restrictions on discharges, including garbage, into Arctic waters. In 2019, IMO accepted the proposal and USCG is currently drafting the amendment language to MARPOL.

B. Compliance and Enforcement

USCG maintains the MARPOL compliance and enforcement program for ships and ensures the adequacy of waste reception facilities in U.S. ports and terminals and their ability to receive MARPOL Annex V wastes (garbage) from ships. These efforts contribute to the reduction of ship-sourced pollution, which is responsible for a portion of the marine debris in the oceans.

Ship-Generated Garbage and Port Reception Facilities

USCG verifies that domestic waterfront facilities maintain the capability of receiving garbage and wastes from ships through its COA program. USCG continues to monitor compliance through annual inspections and spot checks. Criteria for determining the adequacy of garbage reception facilities and their compliance with MARPOL Annex V can be found in 33 C.F.R. §§ 158.400-420. USCG has recently published four articles in Maritime Commons regarding various aspects of port reception facilities and is updating its Instruction Manual, providing additional guidance to USCG facility inspectors on how to effectively manage and the port reception facility COA program in U.S. ports and terminals.

USCG also continues to monitor and gather information on MARPOL reception facilities, including information relating to inspections, investigations, and pollution incidents directly connected to MARPOL Annex V waste streams.

USCG investigates reports of inadequate reception facilities in U.S. port/terminals and posts results of the investigation on IMO Global Integrated Shipping Information System website. USCG maintains a list of over 1,000 U.S. ports and terminals with valid

reception facility COAs in compliance with APPS. This data is available to the public on the USCG Maritime Information Exchange website.³⁵

Ship-Generated Garbage: Shipboard Compliance and Enforcement

USCG ensures foreign vessel compliance with U.S. regulations related to marine environmental protection primarily through Port State Control Examinations. USCG also inspects U.S. commercial vessels annually. Inspectors may expand an examination if there are clear grounds for suspecting potential MARPOL violations. For uninspected recreational and commercial fishing vessels, USCG conducts boardings to determine compliance with domestic and international laws, including environmental laws. USCG averages about 9,000 boardings and safety exams each year on all types of vessels.

C. Debris Removals

As previously reported, USCG's primary authority for the removal of ADVs on or adjacent to the navigable waters of the United States pertains to the prevention and mitigation of pollution-related incidents from discharges into the marine environment from oil or hazardous materials. USCG's authority for responding to these incidents falls mainly under the CWA, OPA-90, and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), with funding authorization under OPA-90 for oil pollution incidents and under CERCLA for hazardous substance releases, respectively. Under each of these authorities, the USCG must determine if: 1) the vessel(s) are discharging oil or releasing hazardous substances or pose a substantial threat of an oil discharge or a hazardous substance release; 2) the responsible party is not mitigating or removing the pollution threat as required by law; and 3) the removal of a vessel is the best option to mitigate the actual or threat of discharge. Under certain circumstances, USCG may exercise authority under the Abandoned Barge Act (46 U.S.C. 4701 et seq.) to remove abandoned barges. USCG may also seek to remove an ADV when the vessel is a hazard to navigation.

In cases where vessels do not pose a pollution threat, local USCG units may coordinate with USACE, NOAA, and state and local program managers to resolve and mitigate the incident. These often involve cases where vessels pose a threat to navigation, obstruct a navigable channel, or endanger protected or sensitive habitat. State authority is typically acted upon when neither USCG nor USACE has authority (e.g., when a vessel is not located in a navigable waterway, does not pose a pollution threat, or is a barge less than 100 gross tons).

Marine Debris Removal Actions by the USCG under the Stafford Act

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288 (42 U.S.C. 5121 et seq.) addresses several areas of Federal Response Actions for both natural and human-caused disasters. The Act creates a National Response Framework, and its Annex outlines agency-specific ESFs. ESF-10 addresses oil and hazardous materials response and names the USCG as a primary coordinating agency. ESF-10, when

³⁵ <http://www.nrc.uscg.mil/>

activated, provides Federal support in response to an actual or potential discharge and/or uncontrolled release of oil or hazardous materials.

D. International Activities

IMO is a specialized agency of the United Nations that is responsible for measures to improve the safety and security of international shipping and to prevent marine pollution from ships. Its decisions form the basis of member-state marine pollution enforcement regimes, including port state inspections, self-reporting, and record-keeping. As head of the U.S. IMO delegation, USCG works to advance a number of key environmental interests at meetings of IMO's Marine Environment Protection Committee.

As reported above, the amendments to MARPOL Annex V came into force on January 1, 2013, and with limited exceptions, prohibit the discharge of all garbage from ships into the sea. USCG has implemented the amendments to MARPOL Annex V through its regulations applicable to all ships operating in U.S. waters and all U.S. Flag ships operating anywhere on international voyages. USCG took a leading role in the development of the Polar Code, amendments to MARPOL, providing enhanced safety and environmental protections for the Arctic, including waste discharge restrictions. USCG, through its COA program, ensures that U.S. ports and terminals provide reception facilities that are consistent with U.S. waste discharge obligations under MARPOL.

Additionally, USCG has taken a leadership role in the Arctic Council PAME Working Group's development of a regional waste management approach. The U.S. co-chaired a submittal, co-sponsored by the eight Arctic Council member States, to IMO's Marine Environment Protection Committee of a new output to amend MARPOL to allow for regional reception facilities for Arctic and Near Arctic Ports and Terminals. This proposal was adopted in 2019 and initial drafts of the proposed amendments are being socialized among U.S. agencies before being shared with PAME members.

In addition, the USCG is bringing subject matter expertise in port reception facilities to ongoing discussions and development of the Arctic Marine Litter Action Plan being spearheaded by PAME.

USCG participates in the development of ISO standards for reception facilities and handling of ships' waste.

E. Outreach

The Sea Partners Campaign is the USCG's environmental education and outreach program focused on developing community awareness of maritime pollution issues and improving compliance with marine environmental protection laws and regulations.

The Sea Partners Campaign has educated hundreds of thousands of children on the stewardship of our oceans. In partnership with the USCG Auxiliary, the Sea Partners Campaign has been correlating marine debris, oil spill, and invasive species subject

matter with national education standards. In addition to its education and outreach efforts, the Sea Partners Campaign continues its efforts to reach the maritime industry through a proactive USCG presence at boat shows, distribution of MARPOL placards to merchant mariners, distribution of placards with anti-pollution messages to marinas and boating communities, and outreach to marina owners and operators through the USCG Auxiliary.

USCG is committed to reaching a wide variety of audiences. In 2018 and 2019, USCG continued to work with NAMEPA on outreach to industry and the public through presentations at NAMEPA-hosted events on the role reception facilities play in preventing marine debris.

VII. FUNDING

Section 1954(e)(5) of the Marine Debris Act requires the IMDCC to provide Congress an estimate of “Federal and non-Federal funding provided for marine debris and recommendations for priority funding needs.” The IMDCC interprets non-Federal funding to be the required non-Federal match associated with the grants program authorized in Section 3 of the Marine Debris Act. The Federal agencies on the IMDCC provided the following information for FY 2018 and FY 2019. IMDCC agencies’ recommendations for priority funding needs are reflected in the President’s Budget request and annual operating plan for each agency in any given fiscal year. The IMDCC also identified recommendations for priority funding needs to address marine debris, should more funding become available.

Please note that several IMDCC agencies conduct activities within multiple programs, offices, and projects that are indirectly related to marine debris efforts. They do not receive funding specific to marine debris in their annual appropriations, and instead receive funding by missions or programs. This complicates extracting the exact funding amount related to marine debris within these integrated actions.

Agency	FY 2018	FY 2018 Non-Federal Match	FY 2019	FY 2019 Non-Federal Match	General Activity Description	Budget Line
BSEE	\$28,535	\$0	\$28,254	\$0	20% salary for one employee and an outreach flyer	Environmental Enforcement
Department of Commerce/NOAA	\$7,026,942	\$2,946,630	\$7,520,100	\$2,532,264	Prevention, Removal, Research, Emergency Response, and Regional Coordination	Coastal Science, Assessment, Response, and Restoration
DOS	\$810,000	\$0	\$0	\$0	Grant	ESF
DOS	\$987,500	\$0	\$0	\$0	Grant	ESF

EPA	\$330,000	\$0	\$339,000	\$0	EPA TFW Program	Marine Pollution
NPS	\$7000	\$0	\$7000	\$0	Operational support for marine debris removal efforts	
NPS	\$6000	\$0	\$6000	\$0	Marine debris monitoring costs (transportation)	
NPS Pacific West Region	\$45,000	\$80,000	\$30,000	\$60,000	Partnership agreements and community projects	
USAID	\$5,000,000	\$0	\$7,000,000	\$0	MWRP, Clean Cities Blue Ocean	
U.S. Navy	\$2,642,000	\$0	\$2,906,000	\$0	Equipment/training	PE 0702856N, BLI 45N40
U.S. Navy	\$2,614,000	\$0	\$2,627,000	\$0	New waste technology test and evaluation	PE 0603721N, BLI 0401
FEMA ³⁶	\$18.6M	\$0	\$0	\$0	Hurricane Michael Response, ESF-10 operations	
FEMA ²⁷	\$6.6M	\$0	\$0	\$0	Hurricane Florence Response, ESF-10 operations	
USACE	\$10,043	\$0	\$23,043	\$0	Operational support for marine debris removal activities	Dept. of Army, Civil Works, Operations and Maintenance
USCG ³⁷	\$9,766	\$0	\$0	\$0	Hurricane Dorian Response, FOSSC authority in North Carolina	
USCG ²⁸	\$49,748	\$0	\$0	\$0	IMO MEPC 72 and 73	
USCG ²⁸	\$21,679	\$0	\$0	\$0	IMO PPR 5	
USCG ²⁸	\$0	\$0	\$27,864	\$0	IMO MEPC 74	
USCG ²⁸	\$0	\$0	\$30,041	\$0	IMO PPR 6	

³⁶ Hurricane response related budget data was obtained from Office of Marine Environmental Response Policy.

³⁷ Conference-related budgetary data was obtained from Post Conference Request summaries from CG – 81 and from Post Conference Request on file with OES.

USCG ²⁸	\$0	\$0	\$15,958	\$0	Protection of the Marine Environment (PAME)	
USCG ³⁸	\$0	\$0	\$5,107	\$0	Secretariat of the Pacific Regional Environment Programme	

Funding Recommendations

In Government Accountability Office (GAO) Report #GAO-19-653, *Marine Debris: Interagency Committee Members are Taking Action, but Additional Steps Could Enhance the Federal Response*, the GAO recommended that the IMDCC "... should develop a process to identify recommendations for priority funding needs to address marine debris, and include such recommendations in its biennial reports."³⁹ In response to this recommendation, the IMDCC coordinated to identify several priority funding needs to address marine debris that were common across the member agencies, should more funding become available. Through this process, the IMDCC compiled this high-level list of priority funding needs to address marine debris, should more funding become available:

- Enhance the ability of Federal agencies to meet their statutory, regulatory, and operational obligations to address marine debris;
- Enhance Federal efforts to build global capacity to better understand and more effectively address marine debris; and
- Enhance Federal efforts to prevent, remove, monitor and assess, and research marine debris in the United States.

³⁸ The Coast Guard has included indirect budgetary contribution to Marine Debris work stemming from participation in regional and international meetings focused on pollution prevention and environmental protection, which included marine debris as an agenda item.

³⁹ GAO Report #GAO-19-653, available at <https://www.gao.gov/assets/710/701694.pdf>.

APPENDICES

A. FEDERAL AUTHORITIES BY AGENCY

Authorities listed are those that: 1) explicitly mention marine debris in their authority; 2) address sources and items that may become marine debris (e.g., plastic, fishing gear, garbage); or 3) address entities that may be impacted by marine debris. An “X” in the last column indicates that the legislation has a regulatory component.

Authority	Explicitly mentions marine debris	Addresses sources and items that may become marine debris	Addresses entities that may be impacted by marine debris	Regulatory
Marine Debris Act, 33 U.S.C. 1951 et seq.	NOAA, USCG			
Coral Reef Conservation Act of 2000, 16 U.S.C. 6406(b)(3)	NOAA			
Coastal Zone Management Act of 1972, 16 U.S.C. 1456b	NOAA			
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601, 9604, 9607		EPA, NOAA, USCG		X
Driftnet Act Amendments of 1990 16 U.S.C. 1826		NOAA, USFWS, DOS		X
Marine Protection, Research and Sanctuaries Act, 33 U.S.C. 1401-1445 (Ocean Dumping Act) Title I & II		EPA, NOAA, USCG		X
Shore Protection Act, 33 U.S.C. 2603		EPA, USCG		X
Clean Water Act, 33 U.S.C. 1321		EPA, USCG, NOAA		X
Clean Water Act, 33 U.S.C. 1346(f), 1342, 1329		EPA	EPA	X
Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 et seq.		NOAA, USCG		X
Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.		EPA		
Pollution Prevention Act of 1990, 42 U.S.C. 13101-13109 et seq.		EPA, NOAA		
Act to Prevent Pollution from Ships (APPS), 33 U.S.C. 1901 et seq. (as		USCG		X

amended by the Marine Plastic Pollution Research and Control Act)				
Rivers and Harbors Act of 1899, 33 U.S.C. 407, 409, 414, 415		USACE		X
Amended Section 2 of the Flood Control Act of 1954, Sec. 208		USACE		
An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors for navigation, and flood control, and for other purposes. 33 U.S.C. 426m		USACE		X
OCS Lands Act, 43 U.S.C. 1331 et seq. and Amendments 43 U.S.C. 1801 et seq.		BSEE		X
Oil Pollution Act of 1990, 33 U.S.C. 2701 et seq. and E.O. 12777		BSEE, EPA, NOAA		X
Energy Policy Act of 2005, 42 U.S.C. 15801 et seq.		BSEE		X
Microbead-Free Waters Act of 2015, P.L. 114-114		Food and Drug Administration		
National Marine Sanctuaries Act, 16 U.S.C. 1431 et seq.		NOAA	NOAA	X
National Wildlife Refuge System Administration Act of 1966, 16 U.S.C. 668dd			USFWS	
National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd			USFWS	
Anadromous Fish Conservation Act, 16 U.S.C. 757a et seq.			USFWS	
Endangered Species Act of 1973, 16 U.S.C. 1531 et seq.			NOAA, USFWS	X
Marine Mammal Protection Act, 16 U.S.C. 1402			NOAA, MMC, USFWS	X
National Park Service Organic Act (as amended and supplemented), 54 U.S.C. 100101			NPS	X
Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121 et seq.			FEMA	X

B. ACRONYMS

6IMDC	Sixth International Marine Debris Conference
ADV	Abandoned and derelict vessel
ALDFG	Abandoned, lost, or otherwise discarded fishing gear
APEC	Asia-Pacific Economic Cooperation
APPS	Act to Prevent Pollution from Ships
ASTD	Arctic Ship Data System
BSEE	Bureau of Safety and Environmental Enforcement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COA	Certificate of Adequacy
CWA	Clean Water Act
DFG	Derelict fishing gear
DOS	Department of State
ENRD	Environment and Natural Resources Division
EPA	U.S. Environmental Protection Agency
ESF	Emergency Support Function
F/V	Fishing Vessel
FEMA	Federal Emergency Management Agency
FOSC	Federal On-Scene Coordinator
FY	Fiscal Year
GAO	Government Accountability Office
IMDCC	Interagency Marine Debris Coordinating Committee
IMO	International Maritime Organization
ISO	International Organization for Standardization
MARPOL	International Convention for the Prevention of Pollution from Ships
MDMAP	Marine Debris Monitoring and Assessment Project

MDP	NOAA Marine Debris Program
MEPC	IMO Marine Environmental Protection Committee
MMC	Marine Mammal Commission
MWRP	Municipal Waste Recycling Program
NAMEPA	North American Marine Environment Protection Association
Navy	U.S. Navy
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NOV	Notice of Violation
NPS	National Park Service
OES	U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs
OPA-90	Oil Pollution Act of 1990
PAME	Arctic Council's Protection of the Arctic Marine Environment Group
PBTs	Persistent, bioaccumulative, and toxic substances
RARE	Regional Applied Research Effort
SFLC	USCG Surface Forces Logistic Center
SEA	Sea Education Association
SOLAS	International Convention for the Safety of Life at Sea
TMDL	Total Maximum Daily Load
TFW	Trash Free Waters
UN Environment	United Nations Environment Programme
USACE	U.S. Army Corps of Engineers
USAID	U.S. Agency for International Development
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service

C. USCG ENFORCEMENT

USCG enforces MARPOL Annex V requirements in accordance with U.S. domestic enforcement regulations in Title 33 of the Code of Federal Regulations, Sections 151 and 158. Enforcement is carried out by USCG Sector and District Offices located nationwide. The following enforcement data detailed in Tables 1.1 through 1.5 represents calendar years 2018–2019 enforcement of MARPOL Annex V and the related domestic regulations concerning garbage management. These deficiencies broadly encompass a number of management requirements set forth in MARPOL Annex V and domestic regulations concerning garbage. These deficiencies do not represent the number of illegal introductions of marine debris, but encompass any step in the waste management process found deficient, such as deficient record keeping or placard requirements on a waste receptacle or incinerator. All of these efforts, however, contribute to the reduction of marine litter by ships and platforms under the jurisdiction of MARPOL Annex V and domestic regulations governing the proper disposal of waste.

Table 1.1 offers context of the large number of USCG inspections (domestic vessels) and examinations (foreign flag vessels) occurring annually. In 2018, 117,919 inspections and examinations resulted in 59,386 deficiencies, with 108 being related to garbage management requirements. In 2019, 120,264 inspections and examinations resulted in 65,485 deficiencies, with 207 related to garbage management requirements. These enforcement efforts represent mechanisms in place and USCG resources spread nationwide to prevent the mismanagement of waste and introduction of marine litter and debris.

Table 1.1: 2018 – 2019 Examinations – Indicating Enforcement Efforts

Vessel Activities for 2018	Activities	Deficiencies	Refuse Deficiencies
Boardings	68,599	15,344	30
Fishing Vessel Exams	6,460	8,415	9
Shoreside Towing Vessel Exams	940	912	2
Vessel Inspections	41,920	34,715	67
2018 Totals	117,919	59,386	108

Vessel Activities for 2019	Activities	Deficiencies	Refuse Deficiencies
Boardings	72,163	16,741	95
Fishing Vessel Exams	6,567	8,141	3
Shoreside Towing Vessel Exams	13	42	0
Vessel Inspections	41,521	40,561	109
2019 Totals	120,264	65,485	207

Source: Marine Information for Safety and Law Enforcement (MISLE) Coast Guard Business Intelligence (CGBI) Vessel Activities cube was last refreshed on Thursday, April 9, 2020.

Deficiencies found during USCG domestic vessel inspections and foreign flag vessel examinations may lead to a verbal or written citation or result in the USCG pursuing a civil penalty, based on the severity of the deficiency and the vessel’s past compliance history. The civil penalty process often begins with a Notice of Violation (NOV), also known as a ticket. The NOV process allows immediate notification to the responsible party of the alleged violation(s) and the penalty proposed by the USCG. It allows the responsible party the option of accepting the proposed penalty and making direct payment to the treasury. The responsible party also has the option to decline the NOV and request that the alleged violation be processed as a Class I Administrative Civil Penalty (Civil Penalty) adjudicated by the Coast Guard Hearing Office. The Civil Penalty process follows rules contained in 33 CFR 1.07 that are designed to safeguard the rights of parties through procedural due process, while using simplified proceedings that are fair and impartial, easily understood, and readily available. At the conclusion of the Civil Penalty process, the Hearing Officer issues a written decision. Any decision to assess a penalty is based upon substantial evidence in the record. Exceptions include those cases referred to the Department of Justice for criminal proceedings to the exclusion of Civil Penalty cases in which the Department of Justice seeks a judicially imposed civil penalty, or other actions.

In FY 2018 and FY 2019, USCG documented 109 and 207 deficiencies that broadly concern violations to garbage management, respectively. In addition to deficiencies, a second level of enforcement includes 134 and 89 citations during the same two years.

Table 1.2: 2018 – 2019 Deficiencies

Vessel Activities for 2018	Component	Deficiencies
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Fishing Vessel Exams	Garbage Placards	3
	Garbage management plan	1
	Other Garbage (MARPOL Annex V)	1
	Control of Garbage	4
Fishing Vessel Exam Total		9
Towing Vessel Exams	Garbage Placards	1
	Arrival Reporting, Garbage	1
Towing Vessel Exam Total		2
Vessel Inspection	Garbage	14
	Garbage Placards	10
	Garbage management plan	29
	Garbage management plan	1
	Other (MARPOL Annex V)	1
	Control of Garbage	9
	Incinerator, Shipboard	1
	Removal Methods/Procedures	1
Vessel Inspection Total		66
Boarding	Garbage Placards	22

	Garbage management plan	1
	Control of Garbage	5
	Portable Containment	2
Boarding Total		30
2018 Total		108

Vessel Activities for 2019	Component	Deficiencies
Fishing Vessel Exam	Control of Garbage	3
Vessel Inspection	Garbage	22
	Garbage Placards	37
	Garbage management plan	46
	Other Garbage (MARPOL Annex V)	4
Vessel Inspection Total		109
Boarding	Garbage Placards	7
	Garbage management plan	2
	Control of Garbage	78
	Portable Containment	1

	Removal Methods/Procedures	7
Boarding Total		95
2019 Total		207

Source: MISLE CGBI Vessel Activities cube was last refreshed on Thursday, April 9, 2020.

Table 1.3: 2018 and 2019 Citations

Cite	Citation Text	Total
33CFR151.59	Failure to properly display Annex V Placard.	112
33CFR151.57	Failure to have a waste management plan on board or failure to follow the plan.	20
33CFR151.71	Discharge of garbage within a special area.	1
33CFR151.55	Failure to keep proper records.	1
2018 Total		134

Cite	Citation Text	Total
33CFR151.59	Failure to properly display Annex V Placard.	77

33CFR151.57	Failure to have a waste management plan on board or failure to follow the plan.	12
2019 Total		89

Source: MISLE CGBI Vessel Activities cube was last refreshed on Thursday, April 9, 2020. There are three types of written citation to include a civil penalty, a notice of violation, or a warning. The following breakdown for USCG enforcement actions are as follows in Table 1.4.

Table 1.4: 2018 – 2019 Enforcement Types

Enforcement Activity Type	Total
Administrative Civil Penalty (Class I)	129
Notice of Violation (NOV)	3
Warning (Civil Penalty)	2
2018 Total	134

Enforcement Activity Type	Total
Administrative Civil Penalty (Class I)	86
Notice of Violation (NOV)	3
2019 Total	89

Source: MISLE CGBI Vessel Activities cube was last refreshed on Thursday, April 9, 2020.

Table 1.5 provides the number of enforcements by year that were brought before a Hearing Officer, adjudicated, and found proven.

Table 1.5: 2018 – 2019 Proven Civil Cases by a Hearing Officer

Cite		Proved
33 CFR 151.59	Failure to properly display Annex V Placard.	77
33 CFR 151.71	Discharge of garbage within a special area.	2
33 CFR 151.55	Failure to keep proper records.	2
33 CFR 151.57	Failure to have a waste management plan on board or failure to follow the plan.	2
2018 Total		83

Cite		Proved
33 CFR 151.59	Failure to properly display Annex V Placard.	35
33 CFR 151.57	Failure to have a waste management plan on board or failure to follow the plan.	3
2019 Total		38

Source: MISLE CGBI Vessel Activities cube was last refreshed on Thursday, April 9, 2020.