



2014-2015 PROGRESS REPORT ON THE IMPLEMENTATION OF THE MARINE DEBRIS ACT

Interagency Marine Debris Coordinating Committee | December 2016

Congressional Report requirement as stated in Marine Debris Act (as amended) (33 U.S.C. § 1954)

Interagency Marine Debris Coordinating Committee

Chair, Department of Commerce, National Oceanic and Atmospheric Administration

Vice-Chair, United States Environmental Protection Agency

Department of Defense, Navy

Department of Defense, United States Army Corps of Engineers

Department of Homeland Security, USCG

Department of the Interior, Fish and Wildlife Service

Department of the Interior,
Bureau of Safety and Environmental Enforcement

Department of Justice, Environment and Natural Resources Division

Department of State, Office of Marine Conservation

Marine Mammal Commission

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Acronyms

APEC	Asia-Pacific Economic Cooperation	F/V	Fishing Vessel
APPS	Act to Prevent Pollution from Ships	FY	Fiscal Year
BPA	Bisphenol A	G7	The Group of 7
BSEE	Bureau of Safety and Environmental Enforcement	GPML	Global Partnership on Marine Litter
CalEPA	California EPA	HI-MDAP	Hawaii Marine Debris Action Plan
CalRecycle	California Department of Resources Recycling and Recovery	ICC	International Coastal Cleanup
CBD	Center for Biological Diversity	IMDCC	Interagency Marine Debris Coordinating Committee
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	IMO	International Maritime Organization
CFR	Code of Federal Regulations	ISO	International Organization for Standardization
COA	Certificate of Adequacy	JTMD	Japan Tsunami Marine Debris
COASST	Coastal Observation and Seabird Survey Team	MARPOL	International Convention for the Prevention of Pollution from Ships
CWA	Clean Water Act	MD-MAP	Marine Debris Monitoring and Assessment Project
DFG	Derelict Fishing Gear	MDP	NOAA Marine Debris Program
DOC	Department of Commerce	MDRPPRA	Marine Debris Research, Prevention, and Reduction Act
DOD	Department of Defense	MEP	Marine Environmental Protection
DOI	Department of the Interior	MMC	Marine Mammal Commission
DOJ	Department of Justice	MOU	Memorandum of Understanding
DOS	Department of State	MPPRCA	Marine Plastics Pollution Research and Control Act of 1987
EEZ	Exclusive Economic Zone	MS4	Municipal Separate Storm Sewer Permits
ENRD	Environment and Natural Resources Division	MSD	Marine Safety Detachment
EPA	U.S. Environmental Protection Agency	M/V	Motor Vessel
EU	European Union	NAMEPA	North American Marine Environment Protection Association
FfE	Fishing for Energy		
FFS	French Frigate Shoals		
FOSC	Federal On-Scene Coordinator		

Acronyms

NAS	National Academy of Sciences	PCBs	Polychlorinated Biphenyls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan	PMNM	Papahānaumokuākea Marine National Monument
NGOs	Non-Governmental Organizations	PSI	Product Stewardship Institute
NOAA	National Oceanic and Atmospheric Administration	RNSP	Redwood National and State Parks
NOP	National Ocean Policy	SAR	Synthetic Aperture Radar
NPS	National Park Service	SOLAS	International Convention for the Safety of Life at Sea
NRC	National Research Council	TFW	Trash Free Waters
NWHI	Northwestern Hawaiian Islands	TMDL	Total Maximum Daily Load
OES	U.S. State Department Bureau of Oceans and International Environmental and Scientific Affairs	T/V	Training Vessel
OPA	Oil Pollution Act	UAS	Unmanned Aircraft Systems
OSLTF	Oil Spill Liability Trust Fund	UNEP	United Nations Environment Programme
PA	Preliminary Assessment	USACE	U.S. Army Corps of Engineers
PACAREA	Pacific Area	USCG	U.S. Coast Guard
PAME	Arctic Council’s Protection of the Arctic Marine Environment Group	USCGC	U.S. Coast Guard Cutter
PBTs	Persistent, Bioaccumulative, and Toxic Substances	USFWS	U.S. Fish and Wildlife Service
		VMDRP	Virginia Marine Debris Response Plan
		WCGA	West Coast Governors Alliance

1.0 Executive Summary

This Interagency Marine Debris Coordinating Committee (IMDCC) Progress Report provides an update on the activities federal agencies have undertaken between January 2014 and December 2015 to address marine debris, as mandated by the Marine Debris Act (33 U.S.C. § 1951 *et seq.*). The Act requires the IMDCC to submit biennial progress reports that evaluate the United States and international progress in meeting the purposes of the Act.

This is the fourth 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 includes all of the information requested in the Act, Section 5(c)(2), entitled “Biennial Progress Reports,” including the following:

Section 3.0: the status of implementation of any recommendations and strategies of the Interagency Committee and analysis of their effectiveness

Section 4.0: a summary of the marine debris inventory to be maintained by the National Oceanic and Atmospheric Administration (NOAA)

Section 5.0: a review of the NOAA Marine Debris Program, including projects funded and accomplishments relating to reduction and prevention of marine debris

Section 6.0: a review of Coast Guard programs and accomplishments relating to marine debris removal, including enforcement and compliance with MARPOL requirements

Section 7.0: estimated federal and non-federal funding provided for marine debris and recommendations for priority funding needs

The appendices contain an overview of the IMDCC, relevant federal agency authorities, and projects funded through the NOAA Marine Debris Program.

2.0 Introduction

2.1 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 and 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.”¹ Anything man-made – such as vessels, fishing gear, plastic bags, beverage bottles, and food wrappers – can become marine debris through dumping, improper waste management, litter that is blown or washed out to sea through storm drains, and extreme natural events which can transport both small and large debris into the ocean.

Major marine debris events caused by natural disasters such as the 2011 Tohoku earthquake and tsunami in Japan and Hurricane Sandy which hit the East Coast of the United States in 2012 have brought international attention to the marine debris issue. While these extreme events have called attention to the issue, there has also been an increasing recognition that marine debris is a persistent, everyday problem.

Plastics, one of the most pervasive types of marine debris, are drawing increasing public concern. Plastics are used in many aspects of daily life and as society has developed new uses for plastics, the variety and quantity of plastic items found in the marine environment has increased dramatically. Plastics are a very visible part of the marine debris problem but many of the impacts of plastic on the marine environment are only starting to be understood. Research has revealed that most commonly used plastics, once in the marine environment, do not completely degrade into organic and inorganic molecules but instead break into smaller and smaller pieces – these pieces are called microplastics when they are smaller than 5mm. Research has also shown that plastic debris is a potential vector for the transfer of persistent, bioaccumulative, and toxic pollutants (PBTs) from the water to the food web, potentially creating a risk to marine species and human health.² This and other unanswered questions about marine plastics and how they affect the health of our oceans are propelling new research.

A second highly visible form of marine debris of great concern is derelict fishing gear (DFG). DFG has numerous impacts including: damaging marine habitats, entangling marine species including seabirds and marine mammals, creating hazards to navigation, and ghost fishing of commercially important species resulting in lost catch opportunities and economic losses for fishermen.

¹ Marine Debris Act (as amended) (33 U.S.C. § 1956).

² Rochman, Chelsea M., et. al. 2013. “Ingested Plastic Transfers Hazardous Chemicals to Fish and Induces Hepatic Stress.” *Nature, Scientific Reports*. (3).

Abandoned and derelict vessels (ADVs) are a third highly visible type of marine debris with thousands 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 lost fishing gear to ADVs, marine debris is polluting the global ocean. The problem is big, however it is not unsolvable. Marine debris is preventable through an increased awareness about the problem, changing individuals' behaviors, and improvements to waste infrastructure.

The Federal Government has recognized that the problem of marine debris can be dealt with effectively by ensuring a comprehensive approach that is local in scale and global in scope, directed at source prevention, and establishes an educated community that can be empowered to take action.³ The Interagency Marine Debris Coordinating Committee (IMDCC) is a multi-agency body tasked with ensuring that this comprehensive approach is implemented to address marine debris.

2.2 The Interagency Marine Debris Coordinating Committee

The IMDCC was established by Congress under the Marine Plastic Pollution Research and Control Act of 1987 (MPPRCA) and was re-established under the Marine Debris Act.⁴ The IMDCC is the interagency coordinating body responsible for addressing marine debris. The IMDCC is made up of the following federal agencies:

- Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) – Chair;
- U.S. Environmental Protection Agency (EPA) – Vice-chair;
- Department of Defense, U.S. Army Corps of Engineers (USACE),
- Department of Defense, U.S. Navy (Navy);
- Department of Homeland Security, U.S. Coast Guard (USCG);
- Department of Interior, U.S. Fish and Wildlife Service (USFWS),
- Department of Interior, National Park Service (NPS);
- Department of Interior, Bureau of Safety and Environmental Enforcement (BSEE);
- Department of State (DOS);
- Marine Mammal Commission (MMC);
- Department of Justice (DOJ)

The IMDCC is primarily responsible for sharing information, assessing and implementing best management practices, and coordinating interagency responses to everyday marine debris and severe marine debris events. 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, both nationally and internationally,

³ IMDCC. August 2008. "Interagency Report on Marine Debris Sources, Impacts, Strategies & Recommendations."

⁴ (33 U.S.C. § 1951 *et seq.*, as amended by Title VI of Pub. L. No. 112-213)

to identify, determine sources of, assess, reduce, and prevent marine debris, and mitigate the adverse impact on the marine environment, natural resources, and vessels.

In 2008, the IMDCC developed a report titled “*Interagency Report on Marine Debris Sources, Impacts, Strategies, and Recommendations*” which was written in response to a congressional charge to submit to Congress a report that identifies 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 three previous biennial IMDCC reports to Congress, provides status updates on the IMDCC federal agency partner activities to implement the 2008 report recommendations and an analysis of their effectiveness. 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 Marine Debris Program (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 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.

Over the past two years since the previous report, the IMDCC has worked to address the recommendations of the 2008 report, focusing in depth on coordinating efforts on marine debris prevention through education and outreach, research and monitoring, and removal. The IMDCC has also addressed emergent marine debris issues including evaluating economic costs of marine debris, emergency response planning, potential marine debris impacts of opening arctic shipping routes, and region specific marine debris issues and efforts. In addition, as attention to the issue of marine debris has increased, the IMDCC and the member agencies have increasingly become engaged in international coordination.

3.0 Implementation of IMDCC recommendations and strategies

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 following section includes the 2008 report recommendations and activities and progress of the IMDCC agencies since the last report for each topic area.

3.1 Status of activities related to IMDCC recommendations

Education and Outreach

2008 Report Recommendations

- 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.
- 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.
- 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 (ICC), 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 provide recommendations regarding specific actions that can be taken to prevent or reduce marine debris.

NOAA Marine Debris Program

Each year, the NOAA Marine Debris Program funds grants through its Prevention through Education and Outreach grant program. The NOAA Marine Debris Program initiated 10 new prevention projects in 2014 and 13 new projects in 2015. Through these projects the program partners with federal, state, local agencies, and non-governmental organizations to educate the public about marine debris. In addition to the prevention grants, the NOAA Marine Debris Program conducts direct education and outreach across the country through activities and tools including: an annual K-8th grade art contest, educational displays in visitor centers, outreach to school children and teachers, stakeholder workshops, a monthly newsletter, and social media. For more information, please view the complete overview of the Marine Debris Program’s education and outreach priorities in Section 5.2.

United States Coast Guard

The USCG works with its interagency partners, industry, and non-governmental groups to highlight and disseminate information on USCG implementation of international regulations to prevent pollution from ships, including ship-generated MARPOL Annex V wastes. Outreach efforts include presentations at national and international forums, development of best practice guidance for waste management aboard ships and at shore reception facilities, and outreach through the Sea Partners Campaign, local Coast Guard units and the USCG Auxiliary.

Environmental Protection Agency

Land-based sources account for a majority of trash in the ocean and coastal environments. EPA has 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 trash-free waters and marine debris and provide information on actions that the public can take to reduce the loadings of trash and debris into U.S. waterways. The national EPA Trash Free Waters website provides extensive information on EPA's Trash Free Waters program.

EPA's Trash Free Waters program has initiated a process to analyze and address factors that limit the success of the many education and outreach programs that seek to prevent littering and improper trash disposal. The Agency will work with communication experts in government and the private sector to develop strategies that combine innovative messaging with targeted actions to define the next generation of behavior modification strategies for trash prevention.

EPA has also participated in the development of a toolkit to highlight the need and the manner in which source reduction can help reduce marine debris and coastal pollution. The Campus Toolkit is a detailed "how to" guide for reducing plastic waste on college campuses and other institutions, especially those located in coastal communities, to help reduce marine debris and coastal pollution. This marine debris and plastic source reduction toolkit for colleges and universities was funded by an EPA grant and resulted from a successful two-year pilot project by the PSI at three coastal University of California campuses.

Bureau of Safety and Environmental Enforcement

The BSEE Marine Trash & Debris Program requires annual training of all workers employed or contracted by oil and gas operators in the offshore Gulf of Mexico. The training highlights the problems caused by marine debris and explains required protocols that workers must follow to prevent loss of debris into the marine environment. The BSEE is developing a new training video which will be available in March 2017.

National Park Service

The National Park System includes 87 units on the ocean and Great Lakes with more than 11,000 miles of shoreline and 2.5 million acres of coastal waters, across 22 states and four territories. These parks attract more than 88 million recreational visits per year. As people visit parks to experience the oceans and coasts, the NPS encourages them to participate in citizen science and stewardship programs. To remove typical marine debris, the National Parks sponsor cleanups during the annual International Coastal Cleanup and National Public Lands Day, or on other dates in collaboration with public agencies, local nonprofit organizations and park partner

associations described in this report. Thousands of volunteers remove many tons of debris from park shorelines each year. Participants either utilize the NOAA Marine Debris Monitoring and Assessment Project protocols or other protocols and guidance to record information on marine debris types they collect. During the process, they learn about the impacts of marine debris and contribute to monitoring and assessment of debris on park shorelines.

Legislation / Regulation / Policy

2008 Report Recommendations

- The IMDCC should review the findings from the National Academy of Sciences (NAS) 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.
- 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.
- 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 component in the IMDCC's gap analysis of regulatory and non-regulatory authorities that can be used to promote marine debris prevention.
- 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.

NOAA Marine Debris Program

In 2014 and 2015, the NOAA Marine Debris Program worked with state and local governments to identify authorities and policies addressing derelict fishing gear and abandoned and derelict vessels. The removal of both DFG and ADVs often falls under state policies which can vary greatly state-by-state. To better understand the state regulations addressing the removal of derelict fishing gear across the country, the NOAA Marine Debris Program, in partnership with the Sea Grant Law Center at the University of Mississippi through a '*Fishing for Energy*' grant, has initiated a review of the legal frameworks governing the placement and removal of fishing gear in eleven states.

Abandoned and derelict vessels negatively impact marine waterways and communities and present a challenge to state and local coastal managers. Part of the challenge with addressing ADVs is that each case is unique and has numerous variables including ownership, jurisdiction, liability, and appropriate legislation or regulations. In an effort to clarify the roles of federal agencies in addressing ADVs, state laws and regulations, and state ADV programs, the NOAA Marine Debris Program launched the ADV InfoHub in November 2015. The ADV InfoHub is a

central source of information regarding ADVs and the policies surrounding them, including how ADVs are handled by each state, each coastal state's ADV legislation, ADV case studies, and information on state programs. In the development of this tool, the NOAA Marine Debris Program consulted with stakeholders through a workshop held in April 2015.

United States Coast Guard

The USCG enforces the vessel-generated waste provisions of MARPOL, through the Act to Prevent Pollution from Ships (APPS)⁵ and the implementing regulations⁶ issued there under.

The USCG also has authority for removal of marine debris in certain circumstances under the authority of the Clean Water Act (CWA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), if there is an actual or potential pollution hazard. The USCG may also act under the authority of the Abandoned Barge Act and work with NOAA and the USACE in removal of vessels that pose a navigation hazard or damage to sensitive marine environments.

Environmental Protection Agency

EPA has a unique capacity, as a national regulatory agency with ten regional offices and programs ranging from ocean and coastal protection to solid waste and storm water management, to address trash in waters and marine debris at the source, as it moves through the watershed, and as it settles in the marine environment. EPA identified prevention of land-based sources entering waters as the primary theme for its Trash Free Waters Program. 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. Within EPA's statutory authorities, Municipal Separate Storm Sewer (MS4) permits can be written to set standards for trash being released from storm water outfalls into municipal rivers and streams. In addition, a small number of municipal jurisdictions have set Total Maximum Daily Load (TMDL) limits for trash entering water bodies, as a means of complying with state and regional water quality standards. Specifically, EPA Region 9 is engaged regarding the impacts of trash on waters in California and final approval of new Water Quality Standards that address trash is expected in 2016. This approach will reduce trash in the environment and benefit the ongoing assessment of impacts of trash on waters in the state of California.

The Clean Water Act does not mandate the use of these regulatory mechanisms for trash, however; they are tools that localities may use in conjunction with other non-regulatory measures to reduce trash loadings into water. During the past couple years, EPA's Trash Free Waters program has embarked on a series of regional initiatives to help states, cities, and other

⁵ 33 U.S.C. § 1901 *et seq.*

⁶ 33 C.F.R. pts. 151 & 158.

important constituent groups determine whether and how best to apply the wide range of regulatory and non-regulatory tools at their disposal to keep trash out of water. EPA has completed and is implementing regional strategies with projects in major coastal areas of the United States, including the Gulf of Mexico, Mid-Atlantic, California and the Pacific Islands, New York/New Jersey, and Puerto Rico. For example, Louisiana worked with EPA's TFW program to develop a "start to finish" handbook that details how to establish a litter abatement program.

U.S. Navy

In the period since the previous IMDCC progress report, the U.S. Navy has developed improvements to existing solid waste equipment and procedures onboard our ships. Specifically, Navy has reengineered our approximately 150 large pulpsters to replace outdated components, reduce maintenance, and restore performance. The Navy continues to examine methods and equipment to be integrated into new design warships to enable zero discharge of paper, cardboard, metal and glass in order to fully comply with new domestic and international discharge regulations.

Bureau of Safety and Environmental Enforcement

The BSEE Marine Trash & Debris Program establishes policies and procedures based on 30 CFR 250.300 for compliance of offshore oil and gas operators in the Gulf of Mexico. These policies include annual training for offshore workers, visible signage on offshore structures, and annual reporting requirements. Due to the success of the Marine Trash & Debris Program in the Gulf of Mexico, the BSEE began expanding the program nationally to the remainder of the offshore oil and gas operators. In addition, BSEE regulations require operators to remove structures, equipment, and obstructions on leases and within easements and rights-of-way following cessation of operations. A total of 4,741 structures have been removed over the history of the offshore program since 1973; 202 were removed in 2014; 117 were removed in 2015.

National Park Service

The National Park Service (NPS) has authority to address marine debris impacts under the NPS Organic Act of 1916 (as amended and supplemented), which directs the Service to conserve the scenery, natural and historic objects and wild life of National Park System units unimpaired for the enjoyment of future generations. 36 CFR § 2.14 prohibits disposing of refuse other than in refuse receptacles. Individual parks may publish rules under the Superintendent's Compendium that control refuse and waste disposal and recycling. 2006 Management Policies 8.6.2.2 prohibits release of helium balloons in parks. In addition, NPS includes provisions in contracts for commercial visitor services to reduce, recycle or properly dispose of waste products.

Incentive Programs

2008 Report Recommendations

- 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.

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

NOAA Marine Debris Program

The NOAA Marine Debris Program 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 then separated into material that can be recycled by Schnitzer Steel and material that is turned to energy in Covanta's Facilities. To date, more than 3 million pounds of gear has been collected at bins placed in 44 communities across the country through the *Fishing for Energy* program. In addition to the bin program, the NOAA Marine Debris Program supports approximately five prevention and research projects annually with the fishing community through the *Fishing for Energy* program.

United States Coast Guard

Every two years the USCG solicits applications from the Maritime Industry for the prestigious Rear Admiral William M. Benkert Award for Environmental Excellence. This program recognizes corporations and businesses involved in marine facility or vessel operations that have demonstrated sustained excellence and outstanding achievement in protecting the marine environment.

Environmental Protection Agency

Under the guidance of EPA's Region 2 office and the New York State Department of Environmental Conservation, a team of graduate students from Columbia University in New York recently published a report entitled, "*Quantifying the Costs of Managing Marine Debris*," which shows that municipalities in the Hudson-Raritan estuary, which encompasses New York City, spend an astounding \$59 million annually in aquatic trash management efforts. By showing the large reactive tax-payer costs involved in the pervasive aquatic trash issue, this economic study further highlights the need for programs like EPA's Trash Free Waters which catalyze proactive strategies that target source reduction and systemic changes in littering behavior.

EPA is also conducting an analysis of available data on the cost impacts of trash on the economy. The scope of the project includes the societal costs of "reactive" trash management (both the direct costs of clean-up/remediation and the indirect costs to local economies and business sectors) and the benefits of "preventive" actions. In 2016, the Agency will release a white paper which looks at the national costs of managing aquatic trash.

Over the past couple years, EPA's Trash Free Waters program developed several other projects that seek innovative incentives for citizens, businesses, and government agencies to prevent

loadings of land-based trash into water much more effectively, including the regional planning efforts mentioned more in the “Fostering Collaboration” Section.

Enforcement

2008 Report Recommendations

- 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.

- 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.

United States Coast Guard

New MARPOL Annex V Amendments, prohibiting the discharge, with very few exceptions, of most Annex V wastes (all of which would contribute to marine debris), came into effect on January 1, 2013. With implementing regulations in place, USCG enforcement of strict discharge regulations for ships continued throughout the 2014-2015 period. In 2015, the Polar Code Amendments to MARPOL were approved at International Maritime Organization (IMO) (and will come into effect on January 1, 2017), creating new challenges for USCG enforcement activities in Alaskan waters, including those associated with prevention of pollution from ships that can contribute to marine debris in Arctic waters.

Bureau of Safety and Environmental Enforcement

The BSEE Marine Trash & Debris Program conducted on-site inspections of a number of oil and gas platforms in the Gulf of Mexico. Company compliance has proven to be good and these inspections have increased awareness among companies and workers.

Department of Justice

DOJ 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 Coast Guard refer cases to DOJ, where they are handled by the Environment and Natural Resources Division (ENRD), sometimes working with the U.S. Attorneys’ offices [Recommendation 4.2, Enforcement].

For example, in June 2015, Norbulk Shipping UK was sentenced after pleading guilty to failing to maintain an accurate oil record book in violation of the Act to Prevent Pollution from Ships (APPS) and providing false statements to the U.S. Coast Guard in the vessel’s garbage record book. The company will pay a fine and complete a three-year term of probation. The vessel’s chief mate also pleaded guilty to an APPS violation and was sentenced to three months’ incarceration. The violations arose in April 2014 when, under the chief mate’s direction, crew members dumped 20 steel barrels of hydraulic oil from the *M/V Murcia Carrier*, a Panamanian-flagged cargo vessel operated by Norbulk. Each barrel dumped overboard contained approximately 55 gallons of oil from the ship’s hydraulic cranes. The discharges occurred while

the vessel was in international waters off the coast of Florida, en route from Costa Rica to New Jersey, and the chief mate presented falsified oil and garbage record books to Coast Guard personnel when the vessel arrived in New Jersey.

In addition, in November 2015 a federal jury convicted Det Stavangerske Dampskibsselskab AS (DSD Shipping) and three of its senior engineering officers of obstructing justice, violating APPS, witness tampering and conspiracy; a fourth employee pleaded guilty in October. DSD Shipping is a Norwegian-based shipping company that operates crude oil tankers, which are legally required to use a pollution prevention device to preclude discharge of the large quantities of waste oil and oil-contaminated wastewater generated by such vessels. Any discharges must be documented in an oil record book, a log regularly inspected by the Coast Guard. Here, DSD Shipping knew that the equipment aboard its vessel, the *M/T Stavanger Blossom*, was inoperable but, rather than repair or replace the device, the company used various methods to bypass it and force the discharge of approximately 20,000 gallons of oil-contaminated wastewater into the ocean. In addition, DSD employees intentionally discharged approximately 264 gallons of fuel oil sludge in plastic garbage bags directly into the ocean. DSD Shipping and the four individual defendants all attempted to hide these discharges from the U.S. Coast Guard by making false and fictitious entries in the vessel's oil record book and garbage record book. Two defendants later lied to the U.S. Coast Guard about the discharge of sludge and ordered lower ranking crewmembers to do the same.

Finally, DOJ enforcement of pollution laws such as the Resource Conservation and Recovery Act and the Clean Water Act, 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.

Cleanups

2008 Report Recommendations

- 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.
- Federal agencies should examine how existing programs can be targeted to support difficult marine debris removal efforts.
- Federal agencies should partner with state, local, tribal, and non-governmental entities to continue to support and conduct cleanup efforts.

NOAA Marine Debris Program

Each year, the NOAA Marine Debris Program funds marine debris removal projects through its Community-based Marine Debris Removal Grants. In 2014, 11 removal grants were awarded in cooperation with the National Marine Fisheries Service Restoration Center. In 2015, 13 grants were awarded and the grant program was run directly through the NOAA Marine Debris Program. These community-based removal projects, which occur nationwide, empower local groups to remove derelict vessels, tires, pilings, nets, or litter from their coastlines. For a more in-depth description of the Marine Debris Program's cleanup priorities, see Section 5.3.

Environmental Protection Agency

EPA's Pacific Southwest Regional Office (Region 9) undertook significant efforts to remove threats to human health and the environment posed by marine debris at several sites on the West Coast. Because marine debris typically harbors hazardous substances and/or oil, existing federal pollution response authorities and funding sources were used to address these risks (i.e., Federal hazardous substance and oil response authority under CWA and CERCLA, and funding authorities under CERCLA for hazardous substances and the Oil Pollution Act (OPA) for oil."), and their implementing regulations, found at the National Oil and Hazardous Substances Pollution Contingency Plan (the NCP).

Region 9 has coordinated with USCG and California EPA (CalEPA) on key abandoned vessels and marine debris cleanups in Northern California, including in the Petaluma River, Bodega Bay, the California Bay-Delta, the Sacramento River, Humboldt Bay, the Tijuana Estuary and the Oakland Estuary (San Francisco Bay). Since 2011, EPA and its federal and state partners removed over 200 abandoned vessels and other marine debris at these sites at a total combined cost of approximately \$15 million. Of this amount, approximately 40 percent came from EPA's Regional Superfund Advice of Allowance and 20 percent from the National Oil Spill Liability Trust Fund. The remainder of the costs, approximately 40 percent, was contributed by CalEPA and included allocations and a \$650,000 grant from the Cosco Busan Oil Spill Settlement fund administered by the National Fish and Wildlife Foundation. The projects included removal of abandoned vessels, dilapidated piers, and debris piles. Projects also addressed hazardous waste containers like oil tanks, lead-based paints, asbestos, marine batteries and e-wastes among many other contaminants and solid waste.

EPA encourages participation in the annual International Coastal Cleanup events sponsored by the Ocean Conservancy and has participated and partnered with others for trash and debris removal. On February 17-19, 2015, EPA Region 9 (along with staff from the San Diego Border Office) partnered with the U.S. Navy to remove trash and debris from three military beaches in Coronado, CA. This annual event, which has been taking place for the last three years, is memorialized in a Letter of Agreement between the U.S. Navy and EPA Region 9. EPA will use the trash data from the cleanup to assist with the source reduction efforts in California and the Pacific Islands Region. With 417 volunteers participating in this year's effort, it was possible to remove 4.15 tons of trash and debris.

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/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.

National Park Service

Park staff and volunteers conducted cleanups across all regions of the National Park System in 2014 and 2015. Marine debris damages coastal habitats, poses risks of injury to animals and potential hazards to visitors, and detracts from the beauty of National Parks. In order to safely and effectively remove marine debris, NPS must adapt to local weather, geography, and environmental conditions unique to 87 park units on the oceans and Great Lakes. Organizational capacity for marine debris removal is greatly enhanced by utilizing volunteers and collaborating with external public and private entities. For example, more than 1,700 volunteers dedicated 6,250 hours to remove debris deposited by Hurricane Sandy at Gateway National Recreation Area in New Jersey and New York. At Assateague Island National Seashore in Maryland and Virginia, 2.66 tons of trash was removed, including buoys, treated lumber, tires, plastic bottles, and balloons during the seashore's 50th anniversary celebration in 2015. Over 200 volunteers participated in three cleanups at Gulf Islands National Seashore in Florida and Mississippi. Partners included nonprofit organizations, universities, school groups, private corporations, and state and local governments.

Alaska Marine Debris Removal Projects

Many Alaskan beaches in the National Parks receive significant accumulations of marine debris due to vessel traffic, ocean currents, and storm surges (Howell et al. 2012). Removal operations in remote locations can present extreme logistical challenges. In 2013, Katmai National Park partnered with the Alaska SeaLife Center's GYRE project to remove marine debris from Hallo Bay. Nearly 4,400 pounds of debris were removed. Fishing-related debris (buoys, floats, rope, line and netting) accounted for over 60 percent of the total debris weight. In 2015, NPS collected over eleven tons of debris on 28 beaches and approximately 50 miles of coastline in five National Park System units in the Western Arctic and Gulf of Alaska (Katmai National Park and Preserve, Kenai Fjords National Park, Wrangell-St. Elias National Park, Bering Land Bridge National Park and Preserve, and Cape Krusenstern National Monument). Major debris types were recorded by weight, with hard plastic constituting 60 percent, ropes and nets 15 percent, and foam 13 percent of debris collected. Some of the debris originated from the Japan Tsunami. Alaska parks deployed staff and volunteers and utilized significant funding and logistical support from multiple partners, including the National Park Foundation, NPS Water Resources Division /Ocean and Coastal Resources Branch, Gulf of Alaska Keeper, U.S. Fish and Wildlife Service, Waste Management and local boroughs and school districts. Periodic removals and debris assessments in Alaska parks will continue to be critical with the changing climate, exploration, and increased vessel traffic, especially in the Western Arctic.

U.S. Navy

At the local level, 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.

Department of State

The Department continued to support the Ocean Conservancy's International Coastal Cleanup activities in 2014 and 2015. It helped mobilize 40 posts/locations to participate in the 2015 Cleanup, including Bureau of Oceans and Environmental and Scientific Affairs (OES) Assistant Secretary (Acting) Judy Garber's participation in the local Washington DC event and a number of Ambassadors around the world. The Department also highlighted the event via social media

and promoted the initiative through Department alumni and outreach materials including Bureau of International Information Services' ShareAmerica articles.

Research

2008 Report Recommendations

- 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.
- 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.
- 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 (SIMOR)⁷ and the Joint Subcommittee on Ocean Science and Technology (JSOST).⁸
- 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.

NOAA Marine Debris Program

In 2014 and 2015, the NOAA Marine Debris Program continued to implement the program's research strategy for 2012-2016. Research focuses for these years included assessing derelict fishing gear impacts and assessing microplastic occurrence and accumulation. For a more in-depth description of the Marine Debris Program's research priorities, see Section 5.5.

Environmental Protection Agency

In April 2014, EPA contracted with the National Research Council (NRC) to convene subject-matter experts in a discussion forum to consider possible human health risks from microplastics in the marine environment. The purpose of the forum was to discuss available data and studies on the issue of possible human health risks from microplastics in the marine environment. The participating subject-matter experts were asked to provide insights on the current scientific basis for determining human health risks, based on a review of scientific research done to date. The

⁷ The Subcommittee on Integrated Management of Ocean Resources is now the Ocean Resource Management Interagency Policy Committee (ORM-IPC)

⁸ The Joint Subcommittee on Ocean Science and Technology is now the Subcommittee on Ocean Science and Technology (SOST) and the Ocean Science and Technology Interagency Policy Committee (OST-IPC)

experts also were asked to identify data gaps and make suggestions for further study. EPA prepared a document summarizing this discussion entitled, “*Summary of Expert Discussion Forum on Possible Human Health Risks from Microplastics in the Marine Environment.*” Building on the recommendations generated from this discussion, in May 2015, EPA convened an internal workgroup of technical experts from Headquarters, Regions, and our labs to identify research priorities from an EPA perspective. Based on research done to date and expert recommendations, the EPA workgroup drafted a white paper that will be used to consult internally and externally to assess additional research project ideas to consider for Agency programs to sponsor.

On September 9, 2014, EPA in partnership with the U.S. Fish and Wildlife Service (FWS) released the Preliminary Assessment (PA) of Tern Island and the associated Technical Support Document in response to the petition EPA received from the Center for Biological Diversity (CBD) in December 2012. The CBD petition asked EPA to assess the impacts of marine debris on sensitive species in the Northwestern Hawaiian Islands (NWHI), an area covering almost 140,000 square miles of Pacific Ocean.

In response to the petition, EPA and FWS limited the scope of this assessment to focus on Tern Island and the surrounding FFS located within the NWHI. A 16-year study spanning 1990 through 2006 tabulated a total of 52,442 marine debris items deposited on Tern Island beaches alone. CBD agreed to this approach.

The PA concluded that contaminants have been released from Tern Island into the sensitive marine and terrestrial environments and further action on the part of the Federal Government is needed at this critical habitat site. The PA reviewed the role that microplastics may play as a mechanism to concentrate and transport hazardous substances to marine species via the food chain. Data collected from Tern Island show a clear progression of bioconcentration and biomagnification of PCBs in the local marine life.

EPA Region 9 is studying the impacts of marine microplastic pollution on marine life and human health. In collaboration with the University of California and State of California partners, we completed fish tissue studies in the North Pacific and South Atlantic gyres to investigate the uptake of toxic contaminants (hazardous substances) adsorbed to the surface of marine plastic particles into fish tissue. Initial results indicate that ingestion of microplastic correlates with increased body burden of contaminants. Lab study results appear to additionally show histopathology (e.g. tumor growth) and endocrine disruption effects. EPA is currently examining the stomach contents of the ocean study fish with the highest body loading of contaminants, investigating a correlation between plastic particles in the gut and increased concentrations of contaminants in the tissue.

At the behest of Cal Recycle, EPA Region 9 conducted microplastic studies on sediment accumulated in the Tijuana River Estuary Borderfield State Park. The sedimentation basins in the Estuary contain approximately 60,000 cubic yards of sediment and entrained trash which washes over the California/Mexico border during rain events. We sifted out (down to 1mm size) plastic particles from the sediment and performed contaminant analyses on both the sediment matrix and the plastic particles. As with studies analyzing seawater and co-located plastic particles, we

found that concentrations of contaminants (hazardous substances) on the surface of the plastic particles were higher than concentrations found in the sediment.

National Park Service

In the 1990s, a pilot monitoring program conducted over several years in ten ocean parks contributed to development of monitoring protocols, volunteer training and education modules, and identification of the sources of debris.⁹ Coastal parks actively participate in citizen science, monitoring and removal in collaboration with public and private sector entities using the Marine Debris Tracker App, the NOAA Marine Debris Monitoring and Assessment Protocols, and other tools.

Microplastics Surveys

Microplastics are small beads or fibers ranging from less than 5 mm to 0.33 um in size that enter water bodies and the ocean from wastewater treatment plants or surface runoff, or as larger plastic debris in the ocean that degrade and break down into smaller fragments. Microplastics can contain phthalates and BPAs and may also adsorb other organic pollutants such as PCBs and pesticides. The deposition of microplastics in rivers, oceans and estuaries and introduction of these chemicals into the marine environment may present risks to marine life and human health. The NPS is conducting a survey for the presence of microplastics in 36 ocean and Great Lakes units of the National Park System in collaboration with the NOAA Marine Debris Program and Clemson University. The purpose of this sampling project is to gain information on the potential presence of microplastics on park beaches, and to further assess potential regional sources and distribution of microplastics where parks are located. A similar survey of coastal beaches in Southeast Region parks indicated relatively elevated levels of microplastics in Savannah River estuary sediment at Fort Pulaski National Monument, Georgia. As a result, NPS is conducting a study of the transport and effects of these microplastics on the oyster reefs in the Monument area.

Wildlife Mortality and Debris Entanglements

The Redwood National and State Parks (RNSP) surveys and monitors beached carcasses to maintain baseline information about seabird and marine mammal mortality, and to determine whether the mortalities resulted from natural or anthropogenic events, including marine debris entanglement. Entanglement in fishing gear and human trash, such as plastic bags and six-pack rings, has been documented as a cause of death for some marine fauna, and is also monitored for frequency of occurrence within RNSP. Beached carcass data is collected in other areas of Humboldt and Del Norte counties outside of RNSP and on much of the coasts of Oregon and Washington by the Coastal Observation and Seabird Survey Team (COASST) and along Marin county beaches by groups working with the Greater Farallones National Marine Sanctuary (Coast Watch). NPS Southwest Alaska Inventory and Monitoring Network staff also collects marine debris/animal carcass data on specific beaches in southwest Alaska parks.

⁹ See Cole, C.A. and Kliwinski, S. 1998. *Final Report of the National Park Marine Debris Monitoring Program*. Pennsylvania State University, University Park, PA.; See also, J. Miller, and Jones, E. *Shoreline Trash – Studies at Padre Island National Seashore, 1989-1998*, 2003. University of Arizona.

Japan Tsunami Marine Debris Guidance

NPS developed a guidance document, Japan Tsunami Marine Debris Response (JTMD) Policies and Procedures, for use by park staff and visitors in recognizing potential JTMD and avoiding potential hazardous debris. The document directs visitors, volunteers and debris responders on safety protocols, following park procedures, avoiding resource damage, and identifying and reporting debris. The Hazardous Marine Debris Handbook and JTMD Biofouling Responses Protocols are incorporated into the guidance document.

Technology Development

2008 Report Recommendations

- 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.

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

NOAA Marine Debris Program

In 2014 and 2015, the NOAA Marine Debris Program, through the *Fishing for Energy* partnership, funded work to develop innovative gear technologies and modifications to prevent the loss of fishing traps and to prevent traps from continuing to catch – or ghostfish – if they are lost. For a more in-depth description of the Marine Debris Program’s fishing gear technology development, see Section 5.5.

Following the 2011 Tohoku earthquake and tsunami in Japan, the NOAA Marine Debris Program partnered with state and local agencies, academia, and NGOs to develop an approach for detecting the Japan tsunami marine debris. The detection approach incorporated satellite detection, sensors ranging from digital cameras to synthetic aperture radar (SAR), sensor platforms including unmanned aircraft systems (UAS), and numerous analysis and modeling techniques including hindcast computer models. These detection activities are summarized in a report released by the NOAA Marine Debris Program in January 2015, “*Detecting Japan Tsunami Marine Debris at Sea: A synthesis of Efforts and Lessons Learned.*” For additional information on the NOAA Marine Debris Program’s activities, including detection and monitoring, following the Japan tsunami, see Section 5.4.

Environmental Protection Agency

U.S. Environmental Protection Agency (EPA) Administrator Gina McCarthy invited thought leaders from the private sector to join her on September 30th for a dialogue regarding national actions to achieve trash free waters in the United States. With Deputy Administrator Stan Meiburg moderating, the participants discussed three topic areas: (1) essential technology breakthroughs related to plastics; (2) strategies to change public behaviors with regard to littering and trash disposal; and (3) proactive business programs to keep trash out of waterways.

Many creative ideas were shared during the two hour discussion. Among them was a possible “breakthrough technology” challenge, a nationwide anti-litter campaign tied to product branding, corporate partnerships to keep trash out of selected urban watersheds, and exploration of how to better identify market value in recycled materials. EPA will share these ideas with a broader audience and work with interested stakeholders to develop strategies for putting some of these groundbreaking proposals into practice.

Fostering Coordination

2008 Report Recommendations

- 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.
- 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.
- 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.
- 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.

NOAA Marine Debris Program

Marine litter was a focus topic under the German G-7 Presidency and NOAA served as a U.S. representative at three workshops to develop concrete actions to address marine debris and identify financing for these actions. Marine litter will continue as a priority under the 2016 Japan G-7 Presidency and NOAA will continue to be engaged.

The Director of the NOAA Marine Debris Program is currently serving as the chair of the Global Partnership on Marine Litter (GPML), an initiative led by the United Nations Environment Programme (UNEP) that seeks to protect human health and the global environment by reducing and managing marine litter. The GPML is voluntary and open to international agencies, governments, business, academia, local authorities, non-governmental organizations, and individuals. It serves as a coordinating forum for global activities addressing three overarching goals which are based on the goals in the *Honolulu Strategy*. The GPML also focuses on capacity building, information collection and sharing, financing, policies, and technologies.

Marine debris is an issue that varies greatly by region. As a result, a crucial role of the Marine Debris Program is coordination with regional coastal managers, non-profits, and other groups interested in addressing marine debris. As part of this role, the NOAA Marine Debris Program coordinated throughout 2014 and 2015 on efforts to develop state emergency response plans for Alabama and Florida as well as to develop, enhance, and implement state action plans in Hawaii, Florida, and Virginia and regional plans in the Mid-Atlantic, the Gulf of Maine, the Great Lakes, the Southeast, and for the West Coast.

Environmental Protection Agency

The EPA Trash Free Waters program is inherently collaborative, forging relationships among all relevant and interested programs (federal, state, local, public & private sector, businesses, NGOs, etc.). TFW program activities support trash prevention and reduction efforts by many public and private stakeholders. Given the land-based origins of the aquatic trash problem, the program has a strong emphasis on helping states, municipalities, and businesses work together to explore more effective ways to reduce litter, block trash entry into water, and reduce packaging waste. Over the last couple of years, the program has initiated stakeholder dialogue and consensus processes for several regional strategies with projects in coastal areas of the United States including the Mid-Atlantic, Gulf of Mexico, New York/New Jersey, Puerto Rico, and California and the Pacific Islands.

In January, 2015, EPA's Region 9 office hosted a Marine Debris Action Plan Workshop together with Guam EPA and a number of other Guam and federal agencies. The workshop utilized a geographically driven, priority based approach to develop the action plan. In attendance were Guam EPA, Bureau of Statistics, Department of Agriculture, Guam Power Authority (GPA), the Harbor Master, industry representatives, the U.S. Coast Guard, U.S. Navy, and NOAA. Guam's priorities and strategies for marine debris prevention and response were presented and discussed. Discussions and action items focused on Municipal Separate Storm Sewer System (MS4) permitting and emerging zero trash to waterways, outreach and education strategies and initiatives, and response to abandoned and derelict vessels. Future workshops are planned for Saipan, and potentially American Samoa.

The EPA, as a member of U.S. delegations for a number international conventions and efforts, is active in the preparation for and participation in the G7 Foreign Affairs Sous-Sherpa Meetings and Workshops addressing Marine Litter and the London Dumping Convention (an issue area includes microplastics in dredged material) to mention a couple.

U.S. Fish and Wildlife Service

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

National Park Service

As noted above, the superlative recreational and scenic values of National Parks galvanize a wide range of volunteers and partner organizations to restore park beaches in coordination with NPS, occasionally under unique circumstances. For example, Oracle Team U.S.A. participated in a beach cleanup at Point Reyes National Seashore, California, after parts of Oracle Team

U.S.A.'s damaged AC72 racing yacht broke up and washed ashore. The cleanup focused on removing boat debris, plastic remnants and trash in advance of winter storms at Limantour Beach, in an area that borders on critical habitat for endangered leatherback sea turtles. Members of Oracle Team U.S.A. joined the Turtle Island Restoration Network, youth from Conservation Corps North Bay, and the America's Cup Healthy Ocean Project. Submerged derelict fishing gear presents hazards to recreational boaters and entraps fish while damaging benthic habitats. In 2015, NPS staff detected an abandoned pound net in 41 feet of water while mapping the bottom of Lake Superior around the Apostle Islands National Lakeshore. Park staff notified the Wisconsin Department of Natural Resources, who then worked with local commercial fishermen to locate and remove the net. Biscayne National Park, Florida removes significant amounts of derelict fishing gear from coral reefs and other habitats every year.

Department of State

Secretary Kerry held the first *Our Ocean Conference* in Washington, DC in June 2014, calling attention to specific focus areas including marine pollution, and making the protection of the ocean a foreign policy priority. The meeting gathered government representatives from around the world, drawing global attention to ocean issues. It resulted in an action plan outlining ambitious targets for combating marine pollution; in particular, a target to "significantly reduce" input of debris so as to measurably reduce marine litter by 2025. During the 2014 conference, Chile's Foreign Minister Heraldo Muñoz offered to hold the 2015 *Our Ocean* conference. The State Department worked extensively with the U.S. Government interagency, academia, NGOs and the private sector in 2014 and 2015 in planning the announcements of further commitments at the 2015 Conference, which took place in Valparaiso, Chile from October 5-6. There were over 80 announcements of new commitments and projects, thirteen of which pertain to marine debris. These included commitments made by foreign governments.

The United States and China announced a partnership between the coastal cities of Xiamen and Weihai in China and San Francisco and New York, committing to share best practices related to waste management to reduce the flow of trash into the water. Announcements also included the support of waste-to-energy projects in APEC economies.

A third *Our Ocean Conference* will be held in Washington, DC in September 2016 to review progress of prior commitments on marine debris and announce new commitments for 2016. The EU will host a fourth *Our Ocean Conference* in 2017.

Beyond the *Our Ocean Conference*, the State Department has been actively highlighting the problem of marine litter at events around the world. State Department staff were instrumental in helping to shape the 2015 G7 Leaders' outcome, which included a declaration on combating marine litter in the June 2015 Leaders' Statement/Communique. At the U.S.-China Strategic and Economic Dialogue (S&ED) in June 2015, the United States and China attended a special session on the ocean that underscored both countries' intentions to preserve and protect the ocean environment.

4.0 NOAA Summary of Marine Debris Inventory

In June 2013, the NOAA Marine Debris Program launched the Marine Debris Clearinghouse, an online database that serves as the Federal Government's information hub for marine debris stakeholders. This resource benefits the nation's coastal managers, researchers, and communities as they work to study and mitigate marine debris and its impacts.

The site, developed in partnership with NOAA's Coastal Data Development Center, provides users access to information on ongoing and historical marine debris projects related to removal, research, and outreach. The site's sophisticated search function allows users to query specific project data, such as date and description, location, and marine debris type.

The MDP is continuing to develop the Clearinghouse, working with the development team to scope new designs and features. Chief among these will be the resource library, a hub that will allow access to regional action and response plans, technical documents, and "topic papers." These papers, which were developed in partnership with the NOAA National Centers for Coastal Ocean Science, synthesize the state of knowledge for specific subject areas within the overall topic of marine debris. Looking to the future, the MDP will be working with partners to assess additional updates and design changes to the clearinghouse that will take advantage of new technologies and techniques for information display, discovery and access.

5.0 Review of the NOAA Marine Debris Program

5.1 Program Administration and Structure

The NOAA Marine Debris Program is the federal lead on efforts to research, prevent, and reduce the impacts of marine debris. The program spearheads research efforts and provides competitive funding opportunities for community-based marine debris removal projects and prevention through education and outreach projects. The MDP has staff located around the country to lead a regional approach to addressing marine debris through partnerships with state and local agencies, tribes, non-governmental organizations, academia, and industry in the regions.

The MDP was originally authorized by Congress in 2006 through the Marine Debris Research, Prevention, and Reduction Act. In 2012, Congress amended this legislation to become the Marine Debris Act and to reauthorize the MDP. Under the amended Marine Debris Act, the program's mandates to lead national and regional coordination and to research, prevent, reduce, and remove marine debris remained, and a new mandate to address severe marine debris events was added. The new mandate recognized 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. These mandates are the foundation for the five pillars of the program which are prevention, removal, emergency response, research and regional coordination.

In 2014 and 2015, 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 United States economy. In addition to addressing marine debris on a national scale, the MDP has assumed a leading role in the global effort to address marine debris following the Fifth International Marine Debris Conference in 2011 and the creation of the Honolulu Strategy as a framework for a comprehensive and global effort to address marine debris.

5.2 Prevention through Education and Outreach

Marine debris prevention activities are a crucial aspect of the MDP. The program has developed a robust education and outreach initiative to educate the public about the causes and impacts of marine debris and to motivate attitude and behavior changes which result in the prevention and reduction of marine debris. The MDP conducts education and outreach directly with the public and through partners supported by either the program's Prevention through Education and Outreach grants or the *Fishing for Energy* program.

The MDP conducts direct education and outreach all across the country. The program has staff in nine coastal regions that participate in school education programs, lead teacher workshops, conduct outreach at regional events, and engage with local stakeholders. The MDP has an annual art contest for K-8th grade students. Each year about 600 drawings are submitted and 13 drawings are selected to be highlighted in the annual MDP calendar. The program has also installed educational displays at National Marine Sanctuaries and National Estuarine Research Reserves around the country. For a list of all of the displays and their locations see Table 4.

In addition to regional education and outreach efforts, the program has an extensive digital communications strategy. The program provides original content through its website, blog, monthly e-newsletter, and social media platforms which include Facebook and Twitter. In 2014 and 2015 the program developed several unique tools, including a six part educational video series called Trash Talk (<http://marinedebris.noaa.gov/discover-issue/trash-talk>), and a central source for information regarding abandoned and derelict vessels called the ADV InfoHub.

The MDP annually supports partnership projects through its Prevention through Education and Outreach funding opportunity. The intent of these partnerships is to educate new audiences about marine debris and to encourage behavior change through hands-on participation (e.g. small-scale shoreline cleanups). In FY2014, the MDP provided \$500,000 in grants to 10 projects ranging from education for fishers to social marketing and awareness campaigns. In FY 2015, the program provided \$675,370 in grants to fund 13 projects to raise awareness about marine debris and stop it at the source. For a complete list of Prevention through Education and Outreach projects awarded in FY2014 and FY2015, please see Table 3.

The MDP also supports prevention projects through *Fishing for Energy*, a nation-wide partnership with National Fish and Wildlife Foundation, Covanta Energy, and Schnitzer Steel that provides fishermen no-cost opportunities to dispose of unwanted gear. Since launching in 2008, *Fishing for Energy* has processed more than 2.5 million pounds of old fishing gear from 41 ports across the Nation, a portion of which has been retrieved directly from the ocean by fishermen. In addition, the *Fishing for Energy* partnership supports approximately five grant projects each year, several of which are prevention projects to educate fishermen and boaters about the impacts of derelict fishing gear and ways to reduce gear loss.

5.3 Removal

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. Each year, the MDP supports locally driven, community-based marine debris removal projects. The program also provides support to the annual International Coastal Cleanup.

Through the community-based Marine Debris Removal Grants, the MDP has funded over 100 removal projects and has removed over 4,800 metric tons of marine debris from the ocean. In 2014 and 2015, the program provided nearly \$4 million to support twenty-three groups in 18 coastal states and U.S. territories on projects ranging from community cleanups in Puerto Rico to crab trap recovery in California to removing an abandoned barge in Lake Erie. For a complete list of projects awarded in FY2014 and FY2015, please see Table 5.

The MDP contributes funding support for the Ocean Conservancy's International Coastal Cleanup, the largest, single-day volunteer cleanup event. In September 2014, 561,895 volunteers cleaned up over 13,000 miles of coastline in 91 countries, picking up more than 16 million pounds of trash. The most commonly-found items include those that we use every day such as cigarette butts, food wrappers, beverage containers, and plastic bags. Ocean Conservancy is in the process of counting results from the 2015 International Coastal Cleanup.

As part of an ongoing effort since 1996, trained NOAA divers with the NOAA Pacific Islands Fisheries Science Center’s Coral Reef Ecosystem Division remove derelict nets and gear each year from the coral reefs and coastlines in the Northwestern Hawaiian Islands. In 2014 and 2015, the effort, funded in part by the MDP, removed nearly 60 metric tons of nets, plastics, and other marine debris from the shoreline and nearshore reefs.

5.4 *Emergency response to severe marine debris events*

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. During 2014 and 2015 there were no natural disasters which caused extreme marine debris events in the United States. However, during this time the MDP continued to address the long lasting impacts of the Japan Tsunami of 2011 and Hurricane Sandy in 2012. In addition, the MDP began working with coastal states to develop emergency response plans to help local and state officials, along with federal partners, respond to extreme marine debris events due to natural disasters and other man-made incidents.

Japan Tsunami Marine Debris

On March 11, 2011, the Tohoku earthquake with a magnitude of 9.0 shook Japan, triggering a tsunami with waves up to 130 feet that inundated over 200 miles of land causing a staggering loss of human life and property. In the wake of the tsunami, debris from the inundation zone washed out into the ocean and, while some of the debris sank, much of the debris made its way across the ocean to the U.S. coasts. In the years following the tsunami, the MDP conducted activities to respond to the Japan tsunami marine debris including detection, modeling, establishing a debris sightings database, shoreline monitoring, and removal.

Following the tsunami, Japan provided \$5 million to the United States with the intent to support marine debris response efforts, such as removal of debris, disposal fees, cleanup supplies, detection and monitoring. The MDP is responsible for administering this fund and has distributed much of the fund to the affected states (Alaska, Washington, Oregon, California and Hawaii). The MDP still holds a small balance of this fund in reserve to respond should additional JTMD come ashore in the United States, such as the two remaining unaccounted for docks.

The JTMD detection and monitoring efforts were synthesized into a report, “*Detecting Japan Tsunami Marine Debris at Sea: A Synthesis of Efforts and Lessons Learned*,” released January 2015. Following the tsunami, the marine debris community determined that assessments of the quantity, location, and movement the JTMD was needed to better anticipate and prepare for potential impacts on marine and coastal resources and communities. The community – which included U.S. federal, state, and local agencies as well as academia and NGOs – utilized opportunistic, satellite, aerial, shoreline monitoring, and remote sensing detection methods paired with modeling efforts to locate and identify marine debris. Results of these detection activities focused on JTMD have advanced the state of knowledge on debris detection, modeling, and monitoring, for both chronic marine debris and for responses to extreme marine debris events.

Post-Sandy Response

During the 2012 hurricane season, Sandy inflicted severe damage to communities and coastal resources over large areas of the Mid-Atlantic and Northeast states, leaving a swath of destruction and large amounts of debris in the waters and marshes of affected states. The debris posed as a hazard to navigation, commercial fishing grounds, and sensitive ecosystems.

After the initial emergency response, the NOAA MDP lead the federal, state, and local efforts in impacted states to determine needs, coordinate debris response activities, and begin initial assessments. In response to the extreme debris event, Congress provided the program with an additional \$4.75 million through the Disaster Relief Appropriations Act of 2013 to locate and remove Sandy-generated marine debris.

To address Sandy-generated debris, the MDP worked with partners to develop a model of debris accumulation, analyzed sonar and LiDAR survey data to find submerged debris and conducted aerial, underwater, and shoreline surveys to assess the quantity and location of marine debris in the impacted coastal areas. The MDP then provided funding to local partners in the affected states (CT, DE, NJ, NY, and RI) to remove priority debris.

Emergency Response Plans

In 2012, following the back-to-back JTMD and Sandy debris events the MDP was reauthorized through the Marine Debris Act and the responsibility of the program was expanded to include response to emergency marine debris events.¹⁰ The program has been proactive in addressing marine debris emergency response by working with coastal states to develop emergency response plans.

Alabama is the first state to finalize a marine debris emergency response plan, releasing the “*Alabama Incident Waterway Debris Response Comprehensive Plan*” in May 2015 and is available on the MDP website. The plan outlines existing response structures at the local, state, and federal levels to facilitate a coordinated, well-managed, and immediate response to potential waterway debris incidents impacting coastal areas in Alabama. The plan will help improve preparedness for response and recovery operations following an acute waterway debris release incident in coastal Alabama.

Other states are in the process of developing similar plans. Florida is expected to finalize their response plan in the near future and the North Carolina plan is underway.

5.5 Research

The Marine Debris Program has developed a research strategy to guide holistic, efficient, and impactful research projects through 2016. The program funded several research projects in FY2014 and FY2015 that focus on better understanding microplastics, the impacts of derelict fishing gear (DFG), and analyzing marine debris metadata. For a full list of MDP funded research projects, please see Table 6.

¹⁰ 33 U.S.C. § 1951 *et seq.*, as amended by Title VI of Pub. L. No. 112-213.

Microplastics – Quantification of Occurrence and Accumulation

In 2014 and 2015, the MDP expanded upon previously funded research projects as well as funded several new projects to learn more about the distribution and accumulation rates of microplastics in different areas throughout the U.S.

The Marine Debris Program has previously funded research exploring how microplastics interact with chemicals in the marine environment, how they are impacted by physical variables such as temperature and pH, and how ingestion of these microplastics may impact marine species. In 2014 and 2015, research efforts further examined the issue of microplastic ingestion looking into the frequency of ingestion of plastics in marine environments such as the Sargasso Sea.

Derelict fishing gear – Impacts, Detection, Loss Prevention, and New Technologies

In 2014 and 2015, the MDP supported research to investigate the physical, biological, and socio-economic impacts of derelict fishing gear in the Chesapeake Bay. The study is conducting a regional DFG impact assessment and developing a framework with technical recommendations and best practices for implementing similar DFG assessments in other regions of the U.S. The results of this study will be available in late 2016.

The MDP supports research to address derelict fishing gear through the *Fishing for Energy* partnership. Each year *Fishing for Energy* supports approximately five projects, several of which are research projects to better understand the impacts of derelict fishing gear and ways to prevent gear losses as well as environmental impacts. Projects funded in FY14 and FY15 included studies to test crab pot biopanel to reduce bycatch in lost pots, side-scan sonar surveys to determine derelict lobster pot densities in Cape Cod, developing and evaluating crab pot disabling and recovery technologies, and determining escapement rates from five different crab pot designs and modifications to improve escapement rates from derelict pots.

Marine Debris Metadata Analysis

The NOAA Marine Debris Program began working with the Ocean Conservancy to analyze 30 years of data on marine debris collected by the annual International Coastal Cleanup and the NOAA marine debris data set. The analysis is modelled after an assessment done by the Australian Commonwealth Scientific and Industrial Research Organization which analyzed data from coastal Australia. This study will assess the data to identify patterns and processes that influence marine debris in the United States and will be used to improve data collection protocols. The results of this metadata analysis will be available in 2017.

Marine Debris Monitoring and Assessment Project

The MDP initiated the Marine Debris Monitoring and Assessment Project (MD-MAP) following the 2011 Japan tsunami to monitor and assess shoreline sites in regions impacted by the Japan tsunami marine debris. In 2013, the program published standardized techniques for assessing debris on shorelines, on water surfaces, at-sea, and in benthic environments. Since it was created, the MD-MAP has expanded to include 178 sites in eight states (AK, WA, OR, CA, HI, DE, MD, and VA) as well as British Columbia and Costa Rica. The project has recorded over 3800 surveys and over 163,800 individual items.

Through the project, the MDP collects baseline data which is used to identify targets for mitigation, evaluate the effectiveness of marine debris prevention efforts, and determine marine debris impacts on the marine environment. Survey data and photos are placed in an online database to facilitate data analysis and regional comparisons of debris types, abundances, and trends. Moving forward, the MDP is developing an expanded online toolbox to house useful tools for MD-MAP partners including a photo ID manual, a database user guide, data analysis templates, informational videos, and FAQs.

5.6 Regional coordination

The NOAA Marine Debris Program is the federal lead in addressing the national problem of marine debris; however the types and impacts of marine debris vary largely by region. As a result, the program has a strong regional coordination component to work with local communities to address their region specific marine debris issues. The MDP has ten Regional Coordinators working in Alaska, the Pacific Northwest, California, Hawaii and the Pacific Islands, the Gulf of Mexico, the Caribbean, the Mid-Atlantic the Northeast, the Southeast, and the Great Lakes. These coordinators provide technical expertise to partners in their region 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, non-profits, and other groups interested in addressing marine debris.

Action Plans and Planning Workshops

In 2014 and 2015, the MDP Regional Coordinators worked with partners in several regions and states to initiate and continue the development of regional 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 plans is to aid states in preventing and reducing debris, as well as mitigating coastal impacts.

Great Lakes

In May 2014, “*The Great Lakes Land-based Marine Debris Action Plan*” was finalized, establishing a comprehensive framework for strategic action to ensure that the Great Lakes, its coasts, people, and wildlife are free from the impacts of marine debris. This five year plan, covering 2014-2019, was the result of several years of hard work and planning by stakeholders in the region. Each year, the partners produce an Action Summary Report detailing progress made on the 53 actions in the plan. The 2014 report was finalized in January 2015 and the 2015 report was finalized in January 2016, both the action plan and the summary reports are available on the MDP website.

Hawaii

Hawaii developed the “*Hawaii Marine Debris Action Plan*” (HI-MDAP) in 2010 as the result of a workshop which brought together government, academia, non-governmental organization, and private business stakeholders. The plan was created to establish a comprehensive framework for strategic action to reduce the ecological, health, and safety, and economic impacts of marine debris in Hawaii. The HI-MDAP was update following a second stakeholder workshop in 2012. In July 2014 a third workshop was held to review accomplishments in implementation of the

plan as well as to discuss gaps and identify priority actions for the future. The two iterations of the plan as well as the proceedings from the 2014 workshop are available on the MDP website.

Florida

During 2014 and 2015, the MDP held two workshops in Florida to bring together stakeholders to begin the process of developing a statewide marine debris reduction plan. A draft plan is under review by state partners and the plan is expected to be finalized in 2016.

Virginia

Between 2012 and 2014 representatives from academia, non-governmental organizations, businesses, and federal, state, and local agencies worked together to develop the “*Virginia Marine Debris Reduction Plan*” (VMDRP), this was finalized in October 2014. The plan outlines near-term (two years), mid-term (two to five years), and long-term (up to 10 years) actions under five goals – leadership, prevention, interception, innovation, and removal – to address marine debris on a statewide basis. The VMDRP is available on the MDP website.

Mid-Atlantic

The MDP led a workshop for stakeholders in the Mid-Atlantic region (NJ, DE, MD, DC, and VA) in June 2015 to initiate the planning process for the development of a regional marine debris reduction plan.

Gulf of Maine

The MDP led a workshop for stakeholders in the Gulf of Maine region (MA, NH, ME, and Canadian representatives) in November 2015 to initiate the planning process for the development of a regional marine debris reduction plan.

Southeast

The MDP led a workshop for stakeholders in the Southeast region (NC, SC, and GA) in 2014 to initiate the planning process for the development of a regional marine debris reduction plan. A second planning workshop was held in January 2016 to continuing building on key objectives and strategies that address consumer debris, derelict fishing gear, wildlife entanglement, and abandoned and derelict vessels. A third workshop will be held in the winter/spring of 2017, and the reduction plan is expected to be finalized in 2017.

West Coast

In October 2013, the West Coast Governor’s Alliance (WCGA) Marine Debris Action Coordination Team released the “*West Coast Marine Debris Strategy*.” The MDP worked closely with the WCGA in the development of the strategy, which aims to address marine debris across the West Coast through a regional framework to identify, assess, prevent, and reduce marine debris. In response to the finalization of the strategy, the WCGA created the West Coast Marine Debris Alliance to facilitate the implementation of the strategy. The MDP has partnered with the West Coast Marine Debris Alliance and will work closely with it to implement the strategy.

Alaska

The MDP will be leading a workshop for stakeholders in Alaska during the 2016 Alaska Forum on the Environment to begin discussions on developing a state marine debris action plan.

6.0 Review of U.S. Coast Guard programs

The USCG has continued to play an important role in the prevention and reduction of marine debris. Throughout the 2014-2015 reporting period, the 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, the USCG assisted its interagency partners in identifying and removing of marine debris under its authorities.

During the 2014-2015 reporting period, 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. The USCG's COA program encourages compliance with MARPOL regulations by ensuring adequate reception facilities for ship's waste are available to all ships calling at U.S. ports or terminals.

The USCG continues to exercise its authorities to place a hold on vessels that pose a potential pollution risk, including pollution from ship generated waste streams which could contribute to marine debris.

During the 2014-2015 reporting period, the USCG continued to provide leadership at the IMO. The work during the period included adoption of the Polar Code Amendments to MARPOL and the Safety of Life at Sea (SOLAS) Conventions. Initially, the IMO focused mainly on operational safety, navigational challenges, and mariner training requirements for ships operating in polar waters. As work progressed, the IMO included provisions for protecting the marine environment from pollution from ships. For example, in the Polar Code Amendments to MARPOL, the USCG articulated some of the unique challenges for the prevention and removal of marine debris in Polar Regions, and especially in the Arctic Ocean as increases in shipping activity are expected in coming decades.

In 2014 and 2015 the USCG participated in seminars and presentations at the United Nations Environment Programme, The World Maritime University, the Organization of American States Committee on Ports, and at NGO and Industry organizations, providing information and guidance on USCG MARPOL implementation programs.

The USCG staff continued its cooperation with international partners on marine environmental protection and continued to chair the International Organization for Standardization work group (ISO/TC8/SC2/WG4) on development of international standards for management and handling of ship's waste. In 2014, the USCG proposed, and ISO accepted, the proposals to revise and update two international standards on management of shipboard garbage and operation of ship's waste port reception facilities (PRF), which are two key areas for reducing and eliminating ship sourced marine debris. In 2015, the USCG proposed future work on operating standards for shipboard waste treatment equipment and for waste management standards for ships operating in Arctic waters.

The USCG continues to educate mariners and promote marine debris awareness among the public through its Sea Partners Campaign outreach program and in partnership with the North

American Marine Environmental Protection Association (NAMEPA). The USCG's prevention efforts are an essential part of the Federal Government's effort to combat the ongoing problem of marine debris. In 2014 and 2015, NAMEPA sponsored seminars in selected ports around the U.S., focusing on key issues involving MARPOL port reception facilities, new international and domestic implementing regulations, mariner training, and regulatory enforcement.

The USCG is addressing a particular area of concern for prevention of pollution from ships in Arctic waters. Working with the Arctic Council's Protection of the Arctic Marine Environment (PAME) Group as a member of the U.S. Delegation, the USCG has assumed a leadership role on managing the operational wastes from ships as all sectors of commercial shipping in the Arctic increases. The USCG presented a paper in 2015 at the World Maritime University in Malmo, SE, on the already existing problem of marine debris entrapped in Arctic ice and how marine debris is carried to the Arctic on deep Atlantic and Pacific currents.

6.1 Compliance and Enforcement

The USCG continues to administer a 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 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

The USCG verifies that domestic waterfront facilities maintain the capability of receiving garbage and wastes from ships through its COA program. The USCG continues to monitor compliance through annual facility inspections and harbor and port 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. In the CY 2014-2015 reporting period, the USCG conducted over 13,000 facility inspections each year.

The 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. In FY 2014, the USCG conducted 540 facility inspections related to MARPOL Annex V and issued or renewed 237 COAs. In 2015, the USCG conducted 585 facility inspections related to MARPOL Annex V and issued or renewed 276 COAs. Currently, there are 1330 U.S. ports and terminals that have been inspected and issued a COA.

The USCG receives reports of inadequate reception facilities and can inspect to determine compliance with a COA. In addition, the USCG responds to the Flag State and provides information on reception facilities and any actions taken to ensure adequate reception facilities are available at U.S. ports and terminals. The USCG will publish updated guidance on MARPOL and reporting procedures to field units, ports and terminals, and ship operators in 2016 or early 2017.

The USCG maintains a list of U.S. ports and terminals that have been issued reception facility COAs in compliance with APPS. This data is available to the public on the USCG Maritime Information Exchange (CGMIX) website (<http://www.nrc.uscg.mil/MARPOL/Default.aspx>).

Ship-Generated Garbage: Shipboard Compliance and Enforcement

The USCG ensures foreign vessel compliance with U.S. regulations related to marine environmental protection primarily through Port State Control Examinations. The USCG also inspects U.S. commercial vessels annually. Inspectors may expand an examination if there are clear grounds for suspecting potential MARPOL violations. For recreational and commercial fishing vessels not required by law to be inspected, the USCG conducts boardings to determine compliance with domestic and international laws, including environmental laws. In 2014-2015, the USCG conducted over 134,800 boardings.

6.2 Debris Removal

As previously reported, the USCG's primary authority for the removal of abandoned and derelict vessels 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. The USCG's authority for responding to these incidents falls mainly under the CWA, OPA, and CERCLA, with funding for oil pollution incidents authorized under OPA and funding for hazardous substance released authorized under CERCLA. Under each of these authorities, the USCG must determine that: (1) the vessels 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. The USCG also has authority under the Abandoned Barge Act to remove abandoned barges under certain circumstances. USCG also has authority to remove an abandoned vessel when the vessel remains a possible source for continued discharge of oil or hazardous material or when the vessel is a hazard to navigation.

In cases where vessels do not pose a pollution threat, local USCG units may coordinate with the 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, for example, 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.

Examples of Marine Debris Removal Actions by the USCG in 2014 - 2015

In the last report, USCG District 8 and local USCG units in Mobile, AL reported on a project to identify derelict vessels and barges in the US Gulf of Mexico and initiate action for removals. USCG Sector Mobile, AL has initiated a project to review over 700 potential derelict vessels that were identified in the Sector Command Center derelict vessel log. Since 2014, Sector Mobile has conducted on-site verification of the 200 pollution threats listed above and has worked to remove pollution threats as authorized. The current list of derelict vessels remains at over 700, but the number remaining as potential pollution threats has been reduced to 15.

Similarly, in 2015, USCG Marine Safety Detachment (MSD) Panama City, FL identified and worked to remove all derelict vessels and large marine debris that are a threat to the environment from Navarre, FL to Carrabelle, FL. This has been accomplished through the use of the incident command system incident action plans detailing each agencies involvement. This was accomplished by utilizing each agencies authorities and jurisdictions to remove abandoned and derelict vessels taking advantage of each agencies role and authority in marine debris removal. The use of non-governmental agencies, college programs and environmental organizations has resulted in obtaining funding and resources that was previously not available. As of now, there have been seven vessels located and removed based on this program and over one thousand gallons of oil has been recovered from these vessels during this project. In addition, the local colleges and non-governmental organizations have donated their time and volunteers to use aerial drones in a pilot program as a resource to identify derelict vessels, oil spills and marine debris remotely. In addition, an oil spill response company has donated an oil absorbent boom that can be used multiple times, allowing the organizations to reduce the cost of oil spill cleanup and salvage operations. The USCG MSD Panama City is continuing to work with local officials, colleges, and non-governmental agencies to encourage these initiatives that will hopefully remove all marine debris and derelict vessels. Work will continue on this initiative in North Florida through 2016.

Coast Guard Coordination with Federal, State, and Local Partners

As previously reported, the USCG has continued its work on marine debris removals with its federal, state, and local partners throughout the 2014-2015 reporting period. The USCG consults at the federal level using funding authorities granted by OPA-90 (Oil Spill Liability Trust Fund) and CERCLA to initiate response actions designed to fully mitigate the pollution threat and works with its federal, state and local partners on identifying and removal of marine debris using private contractors.

USCG PACAREA Actions Related to Japan Tsunami Marine Debris

While the JTMD response wound down considerably in the past two years, local USCG units on the West Coast responded to reportable instances of suspected JTMD, especially when large debris such as derelict F/Vs, docks, and small craft have turned up in the eastern Pacific and around Hawaii and in Southeast Alaska.

Interagency Work in the Papahānaumokuākea Marine National Monument

USCG District 14 and local USCG units in the Pacific Islands continued to work with federal, state, and local partners throughout the 2014-2015 reporting period to monitor marine debris in the Pacific in the waters surrounding the State of Hawaii and at U.S. Territories in the Pacific especially in sensitive marine areas such as Papahānaumokuākea Marine National Monument (PMNM) where the USCG continue to work closely with federal, state, and local partners while engaged in dedicated law enforcement missions.

6.3 *International Activities*

The IMO is a specialized agency of the United Nations which 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, the USCG works to advance a number of key environmental interests at meetings of the IMO's Marine Environment Protection Committee.

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. The 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. While it is too early to gauge the effects of new regulations, the USCG continues to focus on enforcement and prevention programs. Additionally the USCG continues it working closely with industry to ensure environmentally sound management of wastes aboard ships. The USCG, through its Certificate of Adequacy program, ensures that US ports and terminals provide reception facilities that are consistent with U.S. obligations under MARPOL for discharge of all wastes from ships at U.S. ports and terminals. The USCG continues to actively participate in the development of the ISO standards for reception facilities and handling of ships' waste.

6.4 Outreach

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.

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 educational outreach efforts, the Sea Partners Campaign continues its effort to reach out to 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, outreach to marina owners and operators through the USCG Auxiliary.

The USCG is committed to reaching a wide variety of audiences. In 2014 and 2015, the USCG continued to work under the 2012 Memorandum of Agreement with NAMEPA to work together on outreach and education materials to industry and the boating public. In 2014 the USCG made presentations to industry at NAMEPA sponsored national events in Houston, Washington DC, Norfolk, and New York City focusing specifically on issues related to MARPOL, ship's waste management, and reception facility issues.

The USCG Auxiliary reports its vital operational hours for the Sea Partners Campaign in its reporting database, AUXDATA. Since 2014, over 6,000 hours were committed toward the Sea Partners Campaign programs which help disseminate outreach and education materials to the public boating community on MARPOL and marine debris prevention and cleanup.

7.0 Funding and Recommendations

Section 5(e)(5) of the Marine Debris Act requests an estimate of federal funds spent on marine debris activities, as well as an estimate of non-federal funding related to marine debris. The IMDCC has interpreted the requested non-federal funding to be the required non-federal match associated with the grants program outlined in Section 3(c)(2)(A) established under NOAA. Consistent with the timeframe of this report, the federal agencies on the IMDCC provided the following information for fiscal years 2014 and 2015.

Table 1: FY2014 to FY2015 Agency Marine Debris Funding

AGENCY	FY2014	FY2014 Non-Federal Match	FY2015	FY2015 Non-Federal Match	General Activity Description
DOC/NOAA	\$6,000,000	\$2,576,231	\$6,000,000	\$2,872,466	Research, removal, outreach and education, coordination, prevention, database development, partnerships, grants, and contracts.
DOD/Navy	\$3,662,000		\$2,688,000		Improve existing, and examine new, solid waste equipment for ships.
DOI/BSEE	\$25,646		\$25,643		Manage marine debris program, conduct inspections, and produce training materials.
DHS/USCG	\$247,016,000		\$228,133,000		See Section 6 for a comprehensive discussion of USCG activities.
EPA	\$297,000		\$360,000		Trash Free Waters Program

* In order to display budget allocation by Mission-Program, USCG uses an activity-based cost model that averages past expenditures to forecast future spending. Discretionary budget authority for the Marine Environmental Protection (MEP) mission-program contributes in-part to marine debris activities in this table. MEP activities include enforcement of pollution protection regulations and marine pollution response, recovery and investigation.

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 but instead receive funding by missions or programs. This complicates extracting the exact funding amount related to marine debris within these integrated actions. An example is that the Department of State may address marine debris issues through funded public diplomacy activities but does not directly fund activities specific to marine debris.

Appendices

- A. Overview of the Interagency Marine Debris Coordinating Committee
- B. Federal Authorities by Agency
- C. NOAA Marine Debris Program-funded projects

Appendix A. Overview of the Interagency Marine Debris Coordinating Committee

Figure 1 shows the overall drivers for federal agencies to address marine debris and lists, in a concise format, the related activities and outputs of each agency that sits on the IMDCC. The IMDCC's outcomes are also included.

Figure 1 Acronyms

AFCA	Anadromous Fish Conservation Act
APPS	Act to Prevention Pollution from Ships
CRCA	Coral Reef Conservation Act of 2000
CWA	Clean Water Act
CZMA	Coastal Zone Management Act of 1972
DAA	Driftnet Act Amendments of 1990
EPAct	Energy Policy Act of 2005
ESA	Endangered Species Act of 1973
FCA	Flood Control Act of 1954
MDRPA	Marine Debris Research, Prevention, and Reduction Act
MMPA	Marine Mammal Protection Act
MPPRCA	Marine Plastic Pollution Research and Control Act of 1987
MPRSA	Marine Protection, Research, and Sanctuaries Act of 1972
MSRA	Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006
NMSA	National Marine Sanctuaries Act
NWRSA	National Wildlife Refuge System Act of 1966
NWRSIA	National Wildlife Refuge System Improvement Act of 1997
OCSLAA	Outer Continental Shelf Lands Act and Amendments
OPA	Oil Pollution Act of 1990
PPA	Pollution Prevention Act of 1990
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act of 1899
SPA	Shore Protection Act
USCG	U.S. Coast Guard

Figure 1: Overview of the Interagency Marine Debris Coordinating Committee



Appendix B. 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.

Table 2: Federal Authorities by Agency

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		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		
Act to Prevent Pollution from Ships (APPS), 33 U.S.C. 1901 et seq. as amended by the Marine Plastic Pollution Research and Control Act		USCG		X

Authority	Explicitly mentions marine debris	Addresses sources and items that may become marine debris	Addresses entities that may be impacted by marine debris	Regulatory
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		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		FDA		
National Marine Sanctuaries Act, 16 U.S.C. 1431 et seq.		NOAA	NOAA	X
National Wildlife Refuge System Administration Act of 1966 & 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

Appendix C. NOAA Marine Debris Funded Projects

Table 3: NOAA MDP-Funded Prevention through Education and Outreach Projects

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
University of South Florida	Clean Community Clean Coast	2014	\$85,000	\$170,000	Florida
Protectores de Cuencas, Inc.	"Think before you drop it": A Research based Litter Reduction Campaign in Nine Beaches of Guanica, Puerto Rico	2014	\$68,640	\$137,280	Puerto Rico
Alice Ferguson Foundation	Reducing Marine Debris by Targeting Youth and Teenage Litterers	2014	\$52,220	\$106,340	Maryland, Virginia, and DC
Virginia Department of Environmental Quality	A Rising Concern: Reducing Balloon Release and Debris through a Social Marketing Campaign	2014	\$50,000	\$100,000	Virginia
Feiro Marine Life Center	Education and Action: A One-Two Punch to Reduce Marine Debris on the Washington Coast	2014	\$48,000	\$96,000	Washington
Hawaii Wildlife Fund	Hawaii Wildlife Fund's Marine Debris Keiki Education and Outreach Program	2014	\$25,700	\$51,441	Hawaii
Artula Institute for Arts and Environmental Education	Washed Ashore Marine Debris Prevention Teacher-Training Program	2014	\$50,000	\$100,081	Oregon
Santa Barbara Museum of Natural History	Marine Debris - The Ocean and Me	2014	\$37,500	\$75,011	California
Salem Sound Coastwatch	Talking Trash for Clean Oceans	2014	\$57,745	\$117,771	Massachusetts
Wisconsin Sea Grant	Using Outreach and Education to Reduce Fishing Net Loss and Marine Debris in Lake Superior	2014	\$25,000	\$25,000	Wisconsin
Malama Learning Center	A'ole (No) Marine Debris -- Nature- and Culture-based Community Education in Coastal Communities	2015	\$42,000	\$99,260	Hawaii

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Clean Water Fund	ReThink Disposable: Preventing Marine Debris at the Source	2015	\$71,077	\$198,621	California
Earth Team	Zero Litter Project. An anti-litter outreach and educational program with public high school students in the San Francisco Bay Area	2015	\$75,095	\$151,771	California
The Northwest Straits Marine Foundation	Derelict Fishing Gear Prevention and Outreach in Puget Sound, Washington	2015	\$47,873.29	\$95,823	Washington
The National Aquarium	Promoting Community Leadership to Prevent Marine Debris in Masonville Cove and Baltimore, MD	2015	\$72,013.39	\$148,862	Maryland
University of North Carolina, Wilmington	Traveling Through Trash: Coastal Migratory Animal Encounters with Marine Debris	2015	\$29,614.76	\$59,235	North Carolina
Gulf of Maine Lobster Foundation	Tracking Marine Debris Transport: An Education and Outreach Project to Enhance Stewardship and Prevention Behaviors in the Gulf of Maine	2015	\$65,730	\$148,535	Maine
Rutgers University	WeCrab Marine Debris Project	2015	\$57,853	\$115,707	New Jersey
The University of Hartford	From Shore to State House: Piloting a replicable service-learning course on marine debris to engage college students and inform policy at the state level	2015	\$29,318.58	\$58,970	Connecticut
Nature's Academy Inc.	Marine Debris Prevention through Science Literacy (MDPSL)	2015	\$43,700	\$122,375	Florida
The University of Florida	Florida Microplastic Awareness Project	2015	\$18,896	\$34,396	Florida
University of Texas, Pan American	Clean Valley-Clean Gulf: An Innovative Marine Debris Prevention Education and Outreach Program for the Rio Grande Valley	2015	\$91,020	\$182,116	Texas
City of Cleveland	Addressing Barriers to Reducing Plastic Marine Debris in Cleveland, OH	2015	\$32,860	\$67,005	Ohio

Table 4: NOAA MDP-Funded Educational Displays

Location	Type of Display	Funding Year	Federal Funding	Total Project Cost	State
Great Bay NERR	Exhibit at visitor's center	2015	\$18,245	\$18,245	New Hampshire
Lake Superior NERR	Mobile display	2015	\$15,000	\$15,000	Wisconsin
Stellwagen Bank NMS	Exhibits at multiple visitor's centers	2015	\$15,000	\$15,000	Maine
Tijuana NERR	Interpretive exhibit	2015	\$15,000	\$15,000	California
Mokupāpapa Discovery Center	Interactive display	2014	\$10,000	\$10,000	Hawaii
San Francisco NERR	Static display	2014	\$10,000	\$10,000	California
Weeks Bay NERR	Interactive display at visitor's center	2014	\$10,000	\$10,000	Alabama
Ohio Sea Grant	Interactive exhibit	2014	\$10,000	\$10,000	Ohio

Table 5: NOAA MDP-Funded Community-Based Marine Debris Removal Projects

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Sitka Sound Science Center	Bering Sea Critical Habitat Restoration Project II	2014	\$200,000	\$400,000	Alaska
Southwest Wetlands Interpretive Association	Tijuana River NERR Marine Debris Clean-up and Reduction Program	2014	\$150,000	\$300,000	California
Lake Worth Lagoon Environmental Defense Fund	LagoonKeepers.org Environmental Action Initiative	2014	\$135,000	\$280,200	Florida
Sustainable Coastlines Hawaii	Inspiring Coastal Stewardship in Hawaii Through Coastal Cleanups and Educational Outreach	2014	\$40,000	\$80,000	Hawaii
American Littoral Society	Jamaica Bay Marine Debris Removal and Data-driven Prevention Pilot Project	2014	\$150,000	\$411,625	New Jersey
Cornell University Cooperative Extension of Suffolk County	Long Island Sound Deep Water Derelict Lobster Gear Assessment, Removal and Prevention	2014	\$120,000	\$258,925	New York
Alliance for the Great Lakes	A Better Belle Isle: Marine Debris Removal and Prevention	2014	\$60,000	\$120,178	Michigan
South Carolina Sea Grant Consortium	Using Community-Based Initiatives for Marine Debris Removal and Restoration of Essential Fish Habitats in the Charleston Harbor Watershed	2014	\$143,344	\$286,688	South Carolina
The Coral Bay Community Council, Inc.	Preserving Paradise - Marine Debris Removal in Coral Bay, USVI - 2014	2014	\$90,000	\$138,848	U.S. Virgin Islands
The Student Conservation Association, Inc.	SCA NOAA Community-based Marine Debris Removal Project	2014	\$80,000	\$828,991	Washington
The Nature Conservancy	Washington Derelict Gear Removal Project	2014	\$135,000	\$270,000	Washington
The City of Bayou La Batre	Removal of Derelict Vessels and Habitat Restoration in Bayou La Batre Ship Channel	2015	\$150,000	\$234,403	Alabama

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Louisiana Department of Wildlife and Fisheries	Derelict Crab Trap Removal Program in Barataria, Pontchartrain and Terrebonne Basins	2015	\$135,527	\$276,439	Louisiana
BoatU.S. Foundation	Derelict net and debris removal: Mid Atlantic offshore Ocean City, MD and Lake Erie Potters Pond, OH	2015	\$51,142	\$103,200	Maryland and Ohio
Clean Bays	The Providence River Project - Urban Renewal in an Ecologically Sensitive Estuary	2015	\$194,800	\$561,605	Rhode Island
Conserve Wildlife Foundation of New Jersey	Identification and retrieval of derelict crab pots to reduce bycatch of NOAA trust resources in Barnegat Bay, New Jersey	2015	\$109,618.69	\$247,973	New jersey
Stockton University	Derelict crab trap removal and prevention in southern New Jersey coastal bays: transferring a sustainable marine debris program	2015	\$119,625	\$241,597	New Jersey
The Nature Conservancy	Washington Coast Derelict Gear Removal Project - Collaboration with the Quileute Indian Tribe	2015	\$55,775	\$111,550	Washington
Island Trails Network	Shoreline Marine Debris Removal from Shuyak Island	2015	\$128,510	\$391,078	Alaska
Scuba Dogs Society	Community Engagement in Marine Debris Removal, Coastal Conservation and Recycling in Loiza, PR	2015	\$29,988.83	\$67,715	Puerto Rico
Coastal Cleanup Corporation	Biscayne National Park Barrier Island Coastal Habitat Restoration	2015	\$35,000	\$81,620	Florida
North Carolina Coastal Federation	Creating a self-sustaining strategy to remove derelict fishing gear in North Carolina	2015	\$93,047	\$188,484	North Carolina
Mariana Islands Nature Alliance	Growing and Strengthening a Culture of Recycling to Reduce Marine Debris in Saipan's Waters	2015	\$110,000	\$190,076	Commonwealth of the Northern Mariana Islands
University of California, Davis	Fisherman-led Dungeness crab gear recovery in Northern and Central California	2015	\$150,000	\$341,120	California

Table 6: NOAA MDP-Funded Research Projects

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Northern Gulf Institute (NGI) a Cooperative Institute, University of Southern Mississippi	Examining microplastic occurrence in gut contents of Sargassum-associated juvenile fishes	2014	\$69,606	\$69,606	Mississippi
Northern Gulf Institute (NGI) a Cooperative Institute, University of South Alabama	Occurrence and Accumulation of Marine Debris on Barrier Islands in the Northern Gulf of Mexico	2014	\$44,982	\$44,982	Alabama
Joint Institute of the Study of the Atmosphere and Ocean (JISAO) a Cooperative Institute, University of Washington	Quantification of Marine Microplastics in the Surface Waters of the Gulf of Alaska	2014	\$55,000	\$55,000	Washington
Ocean Conservancy	Implementation of the International Coastal Cleanup and a Rigorous Analysis of U.S. Marine Debris Data Sets	2015	\$400,000	\$800,000	National



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