



2012-2013 PROGRESS REPORT ON THE IMPLEMENTATION OF THE MARINE DEBRIS ACT

Interagency Marine Debris Coordinating Committee
September 2014

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Interagency Marine Debris Coordinating Committee

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Vice-Chair, Environmental Protection Agency

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Department of Defense, United States Army Corps of Engineers

Department of Homeland Security, USCG

Department of the Interior, Fish and Wildlife Service

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Department of Justice, Environment and Natural Resources Division

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Cover photo credit: NOAA's Pacific Islands Fisheries Science Center, Coral Reef Ecosystem Division

Acronyms

APPS	Act to Prevent Pollution from Ships	MA	Mission Assignment
BSEE	Bureau of Safety and Environmental Enforcement	MARPOL	International Convention for the Prevention of Pollution from Ships
CWA	Clean Water Act	MDP	NOAA Marine Debris Program
DFG	Derelict Fishing Gear	MDRPRA	Marine Debris Research, Prevention, and Reduction Act
DOC	Department of Commerce	MEPC	Marine Environment Protection Committee
DOD	Department of Defense	MISLE	Marine Information for Safety and Law Enforcement
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
EPA	U.S. Environmental Protection Agency	NDT/RDT	National Dredge Team/Regional Dredge Team
ESF	Emergency Support Function	NOAA	National Oceanic and Atmospheric Administration
FAD	Fish Aggregating Device	NRF	National Response Framework
FEMA	Federal Emergency Management Agency	NRP	National Response Plan
FfE	Fishing for Energy	NWR	National Wildlife Refuge
FWS	U.S. Fish and Wildlife Service	NWSC	Northwest Straits Commission
IAA	Inter-agency Agreement	PACAREA	Pacific Area
ICC	International Coastal Cleanup	USACE	U.S. Army Corps of Engineers
IMDCC	Interagency Marine Debris Coordinating Committee	USCG	U.S. Coast Guard
IMO	International Maritime Organization		
ISO	International Organization for Standardization		

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 2012 and December 2013 to address marine debris, as mandated by the Marine Debris Act (33 U.S.C. 1951 et seq., as amended.). 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 third 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:

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 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; and

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

The appendices contain specific information on the recommendations from the initial Report to Congress, an overview of the IMDCC, relevant Federal agency authorities, and projects funded through the NOAA Marine Debris Program.

2.0 Introduction

Marine debris has become one of the most widespread pollution and coastal hazard issues our oceans and waterways face today. It is a global challenge that threatens the well-being of coastlines, coastal economies, wildlife, marine habitats, human health and safety, and navigation.

Marine debris is defined in the Marine Debris Act (33 U.S.C. 1951 et seq., as amended) 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.’ These items enter the marine environment either directly through human action – such as littering, dumping, or other improper waste management – or indirectly when blown or washed out to sea via rivers, streams, and storm drains. In some cases, coastal storms and natural disasters can be another source of marine debris, creating increased hazards in our inland and coastal waters.

In recent years, marine debris has received increasingly more attention on an international level. Major disaster events such as the March 2011 tsunami in Japan have elevated the marine debris issue to the forefront of media and public interest. While natural disasters certainly add to the marine debris problem and must be addressed, there is a vibrant marine debris community working to address the persistent, man-made problem that threatens our global oceans.

Unanswered questions about marine plastics and how they affect the health of our oceans are propelling new research. As society has developed new uses for plastics, the variety and quantity of plastic items found in the marine environment has increased dramatically. These products range from common domestic material (bags, polystyrene cups, bottles, balloons) to industrial products (strapping bands, plastic sheeting, hard hats, resin pellets) to lost or discarded fishing gear (nets, buoys, traps, lines). Based on research to date, once in the marine environment, most commonly used plastics do not completely degrade into carbon dioxide, water, and inorganic molecules. Instead, they break down into smaller and smaller pieces, known as “microplastics” if they are less than 5mm long.

Studies and anecdotal evidence have shown that fish, birds, and marine mammals eat plastic, which may cause irritation or damage to the digestive system. The international research community will likely spend the next few years focusing on documenting the occurrence of microplastics in the environment and studying effects on both animals and humans.

There is also ongoing movement within the community to address derelict fishing gear. Crab pots, lost fishing nets, and derelict vessels can scour, break, smother, or otherwise damage important coral reefs, sea grass beds, and other sensitive areas as they drift through currents. Many of these habitats serve as the basis of marine ecosystems and are critical to the survival of many species. Nets and pots indiscriminately tangle and kill countless marine mammals, seabirds, fish, and invertebrates; mammal entanglement has surged with the increase in commercial fishing and the invention of a synthetic, more durable fishing net.

From abandoned fishing gear to plastic bags, marine debris turns pristine waters throughout the world into garbage dumps. However, this problem is not unsolvable. It is preventable, because it is for the most part caused by humans.

People and their actions, whether intentional or accidental (a carelessly discarded plastic bottle or a lost net), are the leading source of marine debris. In order to adequately address the issue of marine debris, a comprehensive approach that is local in scale, global in scope, and focused on prevention at the source must be used. The marine debris issue can be linked to a lack of awareness regarding the impacts of marine debris and appropriate disposal practices, a lack of interest in following the appropriate practices, or an inability to follow appropriate practices due to a lack of infrastructure or funds.

By educating the public about their role in the improper management of trash, litter, and other items affecting marine and coastal environments, we identify both the origin of the debris and the types of activities/behavior that generate and convey marine debris. The most successful solution requires a mobilization of public and private-sector actions and environmental stakeholders, resulting in a change in attitudes and practices that will prevent marine debris at its source. Because marine debris is also an international issue, these solutions must happen on a global scale. Much of the debris that impacts the U.S. shorelines is generated via land-based sources from other countries or is generated by the international fishing and shipping fleets. This solution-based approach to marine debris prevention is effective when coupled with response, research, and coordination to address the inevitable continued presence of debris in the environment.

The Federal agencies conducting marine debris activities will continue to focus on a combination of research, reduction, and prevention, and employing strategies such as the *Honolulu Strategy*, a global framework for action. The partnerships between Federal, State, and local stakeholders are also critical and must continue for these activities to be successful. NOAA and its IMDCC partners appreciate the attention Congress pays to this particular issue and will continue to build on existing efforts, as well as improve and find new ways to solve it.

3.0 Implementation of IMDCC recommendations and strategies

The IMDCC is a Federal interagency body responsible for developing and recommending comprehensive and multi-disciplinary approaches to reduce the sources and impacts of marine debris to the Nation's marine environment, natural resources, public safety, and economy. The IMDCC also ensures the coordination of Federal agency marine debris activities both nationally and internationally, to ensure activities are collaborative and not duplicative. The IMDCC also recommends research priorities, monitoring techniques, educational programs, and regulatory action. The IMDCC is made up of the following federal agencies:

Department of Commerce/National Oceanic and Atmospheric Administration (NOAA); Department of Defense/Army Corps of Engineers (USACE), U.S. Navy (Navy); Department of Homeland Security/U.S. Coast Guard (USCG); U.S. Environmental Protection Agency (EPA); Department of the Interior/U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS); Bureau of Safety and Environmental Enforcement (BSEE); Department of State (DOS); Marine Mammal Commission (MMC); Department of Justice (DOJ), and any other federal agency or organization that has an interest in ocean issues and water pollution prevention and control.

In addition, Federal agencies within the IMDCC continue to address aspects of marine debris pertinent to each agency's mandates and capabilities.

3.1 Status of activities related to IMDCC recommendations

The 2008 Interagency Report 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. For a complete list of recommendations provided in the 2008 Interagency Report, please see Appendix A.

Education and Outreach

NOAA Marine Debris Program

Each year, the program partners with Federal, State, local agencies, and non-governmental organizations to educate the public about marine debris. For more information, please view the complete overview of the MDP's education and outreach priorities on page 21.

Environmental Protection Agency

EPA provides information online to inform the public about marine debris programs and to provide information on actions that the public can take to reduce the loadings of trash and debris into the marine environment. The national EPA Trash Free Waters website, located at <http://water.epa.gov/type/oceb/marinedebris/>, includes a Marine Debris Prevention Toolkit with information and links to a wide range of resources available to help many different constituencies take action. The website also provides educational materials, including a new 'Marine Debris Hero' game and a host of other resources that can be incorporated into school science programs. EPA's Pacific Southwest regional website, located at

<http://www.epa.gov/region9/marine-debris/>, also provides extensive information on marine debris programs and resources, including online podcasts from experts on marine debris.

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.

U.S. Fish and Wildlife Service

The USFWS has permitted documentary filming at Midway Atoll National Wildlife Refuge that features the effects of marine debris on the albatross that nest there. These films may be viewed at <http://plasticparadisemovie.com/> and <http://www.midwayfilm.com/>. The USFWS also worked with the Smithsonian Institution to ship four plastic-laden albatross carcasses for research and public display. The USFWS includes information about the dangers of marine debris to wildlife at many of our refuge visitor centers and outreach programs.

To draw attention to the dangers of marine debris and also reduce litter on the refuge, the J.N. "Ding Darling" National Wildlife Refuge in Florida ended the sale of single-use plastic bottles at its Nature Store.

Department of State

In 2012, DOS used social media to encourage participation in the International Coastal Cleanup and included a blog entry on the State Department DipNote blog about U.S. engagement in global efforts to address the challenge of marine debris. In 2013, DOS expanded outreach activities related to the International Coastal Cleanup and encouraged U.S. Embassies and Consulates to host marine debris and waterways cleanups on the date of the International Coastal Cleanup on September 21 and to work with local communities to turn salvaged materials into art projects as part of a State Department-facilitated Marine Debris Art Challenge. Cleanup activities took place in two dozen countries involving a wide variety of local organizations and partners who worked side-by-side with U.S. diplomats. DOS used social media and the DipNote blog to share photographs of the cleanup activities and art projects, which exemplified a great deal of creativity and inspiration, in an effort to further raise awareness of the global scope of the problem of marine debris.

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.

Statutory Authority / Regulation / Policy

Environmental Protection Agency

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 System (MS4) permits can be written to set standards for trash being released from stormwater outfalls into municipal rivers and streams. In addition, a small number of municipal jurisdictions have set Total Maximum Daily Load limits for trash entering water bodies, as a means of complying with state and regional water quality standards.

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 year, EPA's Trash Free Waters program has embarked on a series of regional initiatives to help States, cities, and other 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. The program has initiated a planning process in the Mid-Atlantic region, building on the successful regional strategy developed by EPA in California, with new regional initiatives starting in 2014.

U.S. Navy

In the period since the previous IMDCC progress report, the U.S. Navy completed installation of upgraded plastic waste processors (PWPs) on all surface warships. The new PWP features increased capacity, greater reliability, easier repair, and no limitations on its use—even in the heaviest seas. In addition, the Navy has begun 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 issued revised guidance, effective January 2012, updating and clarifying policies and procedures for compliance of offshore oil and gas operators in the Gulf of Mexico. In September 2012, BSEE also provided revised requirements for Safety and Environmental Management Systems, a performance-focused tool for integrating and managing offshore operations, as well as guidance on required post-hurricane inspections. BSEE regulations require operators to remove structures, equipment, and obstructions on leases and within easements and rights-of-way following cessation of operations. In 2012, a total of 285 structures were removed; in 2013, a total of 211 structures were removed.

Incentive Programs

NOAA Marine Debris Program

The NOAA Marine Debris Program continues to partner 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 turned to energy in Covanta's Facilities. To date, more than 2.2 million pounds of gear has been collected through *Fishing for Energy*.

Environmental Protection Agency

EPA is conducting a literature search and 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. The Agency will release a white paper in 2014 with an analysis that will inform decisions on steps that can be taken to create economic incentives for reducing litter.

During the past year, 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 described above. Among these projects is a multi-stakeholder effort to develop public-private partnerships to greatly increase the recovery and reuse of packaging waste. A sustainable materials management initiative of this type would include actions to create markets for products created from recovered packaging.

Enforcement

United States Coast Guard

On behalf of the United States, in cooperation with its interagency partners, the USCG provides important leadership at the International Maritime Organization (IMO). New MARPOL Annex V amendments, prohibiting the discharge, with very few exceptions, of all Annex V wastes (i.e., ship-generated garbage – much of which would contribute to marine debris), came into effect on January 1, 2013.

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. Improvements in compliance were evident by the end of 2013.

Cleanups

NOAA Marine Debris Program

Each year, the NOAA Marine Debris Program funds approximately 10 removal projects, in cooperation with the National Marine Fisheries Service Restoration Center. 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 list of the MDP’s cleanup priorities, see page 20.

Environmental Protection Agency

EPA encourages participation in the annual International Coastal Cleanup events sponsored by the Ocean Conservancy.

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 these risks (e.g., the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Clean Water Act (CWA) as amended by the Oil Pollution Act (OPA), 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 as well as 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, debris piles and addressed hazardous waste containers, oil tanks, lead-based paints, asbestos, marine batteries and e-wastes among many other contaminants and solid waste.

These Region 9 clean-ups provided valuable lessons learned for future actions, demonstrating that the sooner an abandoned vessel or other marine debris is removed from the aquatic environment, the less expensive the operation and the less impact on the environment. For example, in 2013, as part of its CERCLA Oakland Estuary Marine Debris Removal Action, EPA over \$3 million to pump out an estimated 1,700 cubic yards of contaminated sediment from two large sunken tugs before they could even be raised to address the oil and hazardous substance threats. At least one of these boats, the 150 foot tugboat "Respect," was a long-standing candidate for removal prior to sinking because it posed a potential obstruction and potential hazard to navigation. EPA analysis indicates that, had the boat been removed under the Rivers and Harbors Act while it was still floating in 2007, the estimated cost of removal would have been less than \$500,000 and there would have been no release of oil, asbestos, and other contaminants that entered the estuary after sinking.

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.

The Kodiak National Wildlife Refuge in Alaska detailed a crew from the Youth Conservation Corps to clean 15,000 pounds of beach debris. The students posted a film of their efforts on YouTube.

In January 2013, the USFWS worked with the Washington State Department of Natural Resources and the North Olympic Salmon Coalition to remove 12 tons of creosote-treated wood debris from Dungeness National Wildlife Refuge.

In October 2012, Superstorm Sandy blew boats, docks, trees, and other debris into national wildlife refuges in Virginia, Delaware, New Jersey and New York. Hardest hit was the Edwin B.

Forsythe NWR near Atlantic City, New Jersey, where the storm left behind a 22-mile trail of debris in the fragile tidal marshes and woodlands. At one time, Forsythe had over 200 derelict boats stuck in marshes. The USFWS received \$65 million in Federal emergency funding for projects at national wildlife refuges and fish hatcheries that were damaged during Sandy. In September 2013, the USFWS awarded an initial contract of \$4 million for the cleanup and restoration of environmentally sensitive coastal areas in the Forsythe Refuge.

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 clean-ups at its installations.

Department of State

In 2013, DOS conducted outreach activities related to the International Coastal Cleanup and encouraged U.S. Embassies and Consulates to host marine debris and waterways cleanups on the date of the International Coastal Cleanup on September 21. Cleanup activities took place in two dozen countries involving a wide variety of local organizations and partners who worked side-by-side with U.S. diplomats.

Research

NOAA Marine Debris Program

In order to better understand the derelict fishing gear problem, the NOAA MDP has supported multiple research efforts to measure and address the impacts of derelict crab traps in Alaska's Dungeness crab fisheries. We have also provided funding to address the impacts of microplastics, published standardized monitoring protocols, and worked to investigate the economic impact of marine debris. For a more in-depth list of the MDP's research priorities, see page 22.

Environmental Protection Agency

In 2013, the EPA Trash Free Waters program initiated a project to convene a panel of experts to assess the current state of knowledge about possible human health effects from eating fish that have consumed microplastics in oceans and the Great Lakes. The panel will be convened by the National Academies of Science (NAS) in March 2014. The Trash Free Waters program also initiated the project to assess cost impacts of trash to society, described in the incentives section, above. Also in 2013, staff scientists from EPA and NOAA met (under the auspices of the IMDCC) to share information on their respective research agendas related to marine debris. Headquarters and regional staff participated in this valuable information exchange.

In a letter signed on November 14, 2013, EPA Region 9's Administrator announced the Agency's plan to conduct a Preliminary Assessment (PA) on Tern Island located within the Northwestern Hawaiian Islands (NWHI) Papahānaumokuākea Marine National Monument in response to the Center for Biological Diversity's petition for a PA assessing the impact of plastic marine debris within the entire NWHI, including portions of the Pacific Garbage Patch. Tern Island, which is currently managed by the USFWS, was used as an airstrip during WWII and then as a Coast Guard station; as a result the Island contains numerous dumps with buried electronic equipment and other waste. EPA, in partnership with the USFWS, intends to evaluate potential and observed releases of hazardous substances from Tern Island, including hazardous

substances that adsorb to small plastic marine debris (microplastics) in the surrounding surface water. Because Tern Island provides critical breeding and foraging habitat for the extremely endangered Hawaiian monk seal and the threatened Hawaiian green sea turtle, the EPA Regional Administrator noted that it “presents a scientifically meaningful opportunity to evaluate the potential toxicological impact of plastic marine debris ingestion on highly sensitive receptors.”

U.S. Fish and Wildlife Service

The USFWS is participating in collective efforts to monitor for marine debris in Alaska. During the summer of 2012 and 2013, National Wildlife Refuges in Alaska conducted monthly debris surveys at six remote field camps, and reported objects sighted during vessel operations.

Technology Development

NOAA Marine Debris Program

In June 2013, the NOAA MDP cooperated with the NOAA Unmanned Aircraft Systems (UAS) Program, NOAA National Environmental Satellite, Data, and Information Service, and the University of Alaska at Fairbanks on a project to evaluate the potential for use of small unmanned aerial system in detecting debris, including surveys both at-sea and on shore. For a more in-depth list of the MDP’s modeling and detection priorities, see page 21.

Environmental Protection Agency

Although EPA’s Trash Free Waters (TFW) program does not include a specific technology development project, TFW initiated a multi-stakeholder project in 2013 to develop public-private partnerships to greatly increase the recovery and beneficial reuse of packaging waste. Among the projects ideas under consideration are initiatives to support the development of more recyclable packaging materials (particularly for plastic materials), which would help to create markets for products created from recovered packaging.

Fostering Coordination

NOAA Marine Debris Program

NOAA is currently involved in The Global Partnership on Marine Litter (GPML), a new initiative led by 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 will act as a coordinating forum for global activities and have three overarching goals, based on the goals in the *Honolulu Strategy*. It will also focus on capacity building, information collection and sharing, financing, policies, and technologies. Throughout 2012 and 2013, the MDP also coordinated efforts to develop and enhance state action plans in the Great Lakes region, in Hawaii, and in Washington with the West Coast Governor’s Alliance.

Environmental Protection Agency

The EPA TFW program is inherently collaborative, forging relationships among all relevant and interested programs (Federal, State, local, public & private sector, businesses, NGOs, etc.). In 2013, the program initiated stakeholder dialogue and consensus processes for several projects, including a regional planning initiative for the Mid-Atlantic, an initiative to increase recovery

and beneficial reuse of packaging and plastic trash, and an information exchange between NOAA and EPA researchers.

In addition, TFW is part of a larger Agency effort to address ocean and coastal priority issues in a more integrated way in support of the National Ocean Policy. The program has facilitated greater communication and integration of related programs at the Headquarters and regional levels (e.g., stormwater, urban waters, green infrastructure, sustainable materials management, National Estuary programs, and large aquatic ecosystem programs for the Great Lakes, the Gulf of Mexico, and the Chesapeake Bay).

U.S. Fish and Wildlife Service

The USFWS is working with the States of Oregon and Washington to coordinate and manage marine debris assessment and cleanup of national wildlife refuges affected by Japan tsunami marine debris. The USFWS also participates on the Aquatic Nuisance Species Task Force to help raise awareness and respond to threats of invasive species introductions from Japan tsunami marine debris.

Department of State

Representatives from DOS and NOAA attended the Third Intergovernmental Review Meeting (IGR-3) on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) in Manila from January 25-26, 2012. Preceding the IGR-3, U.S. delegates also attended a [Global Conference on Land-Ocean Connections](#) (GLOC) from January 23-24, 2012, also in Manila, to discuss emerging issues and science-policy interlinkages, including issues related to marine debris; results of the GLOC meeting fed into the IGR-3 meeting. Through the IGR-3 outcome document, the Manila Declaration, delegates, including those from the United States, decided that the UNEP GPA Coordination Office should focus its work on three priority land-based pollution source categories for 2012-2016: litter (or debris), nutrients and wastewater. Through the Manila Declaration, delegates also recognized the global scale of, and decided to work to find innovative solutions and initiatives to, the marine litter problem, and recommended the establishment of a Global Partnership on Marine Litter (GPML).

The United States participated in the United Nations Conference on Sustainable Development in Rio de Janeiro from June 20-22, 2012, endorsing the outcome document, “The Future We Want,” which noted with concern that the health of oceans and marine biodiversity are negatively affected by marine pollution, including marine debris, especially plastic; committed to action to reduce the incidence and impacts of such pollution on marine ecosystems, including through the effective implementation of relevant conventions adopted in the framework of the International Maritime Organization, and the follow-up of relevant initiatives such as the GPA, as well as the adoption of coordinated strategies to this end; and committed to take action to, by 2025, based on collected scientific data, achieve significant reductions in marine debris to prevent harm to the coastal and marine environment.

DOS sent a representative to the October 2-4, 2013 Second Global Conference on Land-Ocean Connections Meeting (GLOC-2) held in Montego Bay, Jamaica. Among the objectives of the conference were to identify approaches to address current and emerging issues in the marine and coastal sector, with a focus on the three priority land-based pollution source categories of the

GPA for 2012-2016 (marine litter, nutrients and wastewater), and to serve as a Partnership Forum for three Global Partnerships on marine litter, nutrients and wastewater. One of the key outcomes of the meeting was the formalization of the structure for the Steering Committee of the GPML. Although NOAA was unable to attend the GLOC-2 meeting, a NOAA representative has offered to serve as the Chair of the Steering Committee of the GPML, and in 2013, the IMDCC began discussions to consider U.S. partnership in the GPML.

In both 2012 and 2013, DOS provided \$60,000 to the Secretariat of the Pacific Regional Environment Programme (SPREP) for programming related to reducing land-based sources of marine pollution, including marine debris, in the Pacific Islands Region. In 2013, the United States also supported the use of U.S. contributions to the Noumea Convention Operating Fund administered by SPREP, of which the United States is a member, for the project “Marine Plastic Litter, status and recommendations for Pacific based research and action.” A total of \$45,000 in funds provided by the United States will be allocated from the Noumea Convention Operating Fund to implement the project between 2014-2016. The project will include the development of a background position paper on marine plastic litter, status and recommendations for the Pacific region, and further refinement of selected priority actions and implementation of at least two priority strategies that will result in improvements in information about, and management of marine litter in the Pacific region between 2014 and 2016.

Throughout 2012 and 2013, DOS continued to play a role in interagency efforts to prepare for and address impacts of marine debris originating from the March 2011 Japan tsunami. Specifically, DOS ensured effective diplomatic cooperation with Japan on tsunami marine debris, facilitating meetings with staff from the Embassy of Japan in Washington, DC, and working through the U.S. Embassy in Japan to facilitate meetings between other U.S. agencies and the Government of Japan. These meetings have helped U.S. government officials establish a common understanding with Japanese counterparts on various aspects of the tsunami marine debris issue, such as information sharing and public communications. DOS assisted in coordinating with the Government of Japan to receive updated information on Japanese models of tsunami marine debris timelines and trajectories, as well as information about the type and quantity of debris that was carried away by the tsunami, and worked closely with the Government of Japan to determine how to handle specific cases involving items that are clearly linked to the tsunami. In November 2012, DOS facilitated the diplomatic coordination of a generous gift of \$5 million from Japan to the United States, through the NOAA MDP, to support efforts in response to marine debris washing ashore in the United States from the March 2011 earthquake and tsunami in Japan.

4.0 NOAA Summary of Marine Debris Inventory

In June 2013, the NOAA MDP launched the Marine Debris Clearinghouse, an online database that will serve 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.

Looking ahead in 2014, the Clearinghouse will include new features, including a resource library that will provide access to regional action and response plans, technical documents, and "state-of-the-science" papers that discuss key findings and knowledge gaps in marine debris research and operations. <http://clearinghouse.marinedebris.noaa.gov/>

5.0 Review of the NOAA Marine Debris Program

5.1 *Program Administration and Structure*

The NOAA Marine Debris Program (MDP) leads Federal efforts to research, prevent, and reduce the impacts of marine debris. Its staff, which is positioned across the country, supports marine debris projects in partnership with State and local agencies, tribes, non-governmental organizations, academia, and industry. The program also spearheads national research efforts and works to change behavior in the public through outreach and education initiatives.

In December 2012, Congress passed legislation reauthorizing the MDP. The new, amended Marine Debris Act largely preserved the program's mandates to research, prevent, reduce, and remove marine debris, but it added a new core function: addressing severe marine debris events. The act recognizes the need to address the unusual amounts and types of marine debris following events such as tsunamis or hurricanes and NOAA's critical role, placing the program at the forefront of coordination and scientific support for these events.

In 2012 and 2013, the MDP continued supporting and implementing projects across the country that address the adverse impacts of marine debris on the United States economy, the marine environment, and navigation safety through identification, determination of sources, assessment, prevention, reduction, and removal of marine debris.

5.2 *Removal*

Since its inception in 2006, the program has supported local and national marine debris removal projects, ranging from grants to community-based organizations to the annual International Coastal Cleanup. Through its local grants, NOAA has funded dozens of marine debris removal projects and removed about 4,000 metric tons of marine debris from our oceans.

In 2012 and 2013, the program provided nearly \$2 million administered through NOAA's Restoration Center to support locally driven, community-based marine debris removal and prevention projects. Twenty-one groups in 11 coastal States and U.S. territories received funding for projects ranging from derelict net removal in Washington State to derelict vessel removal in Alabama's Dog River watershed. For a complete list of projects awarded in FY2012 and FY2013, please see Table 3.

The MDP is also a major contributor in funding and technical assistance for the Ocean Conservancy's International Coastal Cleanup, the largest, single-day volunteer clean up event. In September 2012, 561,633 volunteers cleaned up nearly 18,000 miles of coastline around the world, picking up approximately 10 million pounds of trash. The most commonly-found items include those that we use every day, from food wrappers to beverage containers to plastic bags. Ocean Conservancy is in the process of counting results from 2013's 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 2012 and 2013, the effort, funded in part by the MDP, removed about 56 metric tons of nets and plastics from the shoreline and nearshore reefs.

5.3 Prevention and Reduction

While the program funds removal, it also focuses on the critical aspect of prevention, which is the key to solving the marine debris problem. The program has a robust outreach initiative, which includes working with teachers, aquariums, zoos, and other learning centers to educate the public about marine debris.

The program has initiated partnership projects through its Prevention through Education and Outreach funding opportunity with groups such as the Ocean Conservancy, Oregon State University, Anchorage Museum, and a host of other stakeholders with the ability to reach new audiences. In FY2013, the MDP provided \$458,264 in grants to launch eight new initiatives ranging from curriculum development and teacher workshops, to museum displays, to dock-side education programs. The intent of these partnerships is to educate the public about marine debris through dedicated prevention activities including, but not limited to: 1) encouraging changes in behavior to address marine debris; 2) developing, using, and disseminating tools, products, and campaigns to improve efforts to address marine debris; and, 3) engaging the public in active, personal participation (e.g. a small-scale shoreline cleanup with students or other hands-on activities, etc.). For a complete list of prevention projects awarded in FY2012 and FY2013, please see Table 2.

The MDP is also a partner in *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. The program informally supports its partners' initiatives around the Nation, providing expertise and staff time to outreach projects. Since launching in 2008, *Fishing for Energy* has processed more than 2.2 million pounds of old fishing gear from 41 ports across the Nation, a portion of which has been retrieved directly from the ocean by fishers. In 2013, the partnership added Martha's Vineyard, MA, and Miami – Port Everglades, FL, to its port list. In August 2013, partners in the *Fishing for Energy* initiative gathered at Covanta Energy-from-Waste facility in Haverhill, MA, to celebrate a significant milestone: the facility has turned more than 300,000 pounds of derelict fishing gear into renewable electricity.

The *Fishing for Energy* project also supports research and removal projects with the participation of the fishing community. For example, in FY2012, the program provided funding to the Provincetown Center for Coastal Studies in Massachusetts to assess derelict gear with sonar in Cape Cod Bay. The group enlisted the help of four active fishing vessels to aid in removal in 2013, with the goal of removing an estimated 40 tons of lost, abandoned, or jettisoned gear.

Digital communications

Interest in marine debris grew significantly across the country over the past few years, in large part due to hot media topics such as “garbage patches” and debris from the Japan earthquake and

tsunami disasters. In an effort to improve communications and provide the public the kind of instant information it demands, the program redeveloped and launched its website on a new, dynamic Drupal platform. The program's website now offers a suite of new tools and features, including current news stories, curriculum and tools for teachers, a video gallery, and a Google map showing "Marine Debris Where You Live."

5.4 Research

The MDP has developed a research strategy that will guide holistic, efficient, and impactful research projects through 2016, focusing on plastics, their degradation rates, and chemical impacts, as well as the economic impacts of marine debris and the benefits of removing it. The program funded several research projects in FY2012 and FY2013 that further our understanding of these issues. For a full list, please see Table 4. These projects include:

Plastics and chemicals

- The Regents of the University of California, Davis to explore how microplastics contaminated with absorbed chemicals impact species that ingest them, as well as the likelihood of microplastic particles and chemicals to be transferred to a higher trophic level. (\$200,000)
- Sea Education Association to explore how animal behavior influences the ingestion of potentially harmful microplastic particles. (\$117,751)
- Virginia Institute of Marine Science to determine which factors, such as temperature and pH, are important influences on the way chemicals and plastics interact in the environment. (\$173,497)

In 2012, the MDP also funded research through the University of Maryland to analyze samples the program collected during surface trawl samples in the Chesapeake Bay. The researchers found microplastics in almost all of the samples, validating an analytical quantification technique developed by the University of Washington Tacoma and the MDP, and further confirming that microplastics are a problem in coastal systems.

Derelict fishing gear

In 2012 and 2013, the MDP continued to work actively in the State of Alaska in order to understand the impacts of derelict fishing gear. Culminating a 2-year study of derelict crab pots, the MDP worked with National Marine Fisheries Service scientists at NOAA's Auke Bay Labs to examine behaviors of Dungeness crabs entrapped in pots. The experiment uncovered a crucial fact: traps are not opening as expected, even when the escape cord degrades, and without any gap in the lid, crabs were unable to escape. When we modified the trap with a gap between the pot lid and the frame, crabs were able to escape. The MDP worked with the scientists to test multiple alternate escape mechanisms, identifying potential changes to crab pot designs which could reduce ghost-fishing impacts of lost gear. The MDP and Auke Bay Labs will now move forward with testing biodegradable panels in the field. This research could lessen the impact of a Dungeness crab trap once it becomes derelict.

Detection and modeling

One of the primary challenges of research on at-sea debris is detecting and quantifying widely dispersed open ocean debris. Once the debris comes ashore, it can become concentrated on “catcher” beaches that are inaccessible or inhabited by protected species, posing further challenges in access and detection. The NOAA MDP cooperated with the NOAA UAS Program, NOAA National Environmental Satellite, Data, and Information Service, and the University of Alaska at Fairbanks on a project to evaluate the potential for use of small UAS in detecting debris, including surveys both at-sea and on shore. As part of this project, NOAA conducted field testing of a UAS on the Olympic Coast of Washington in June 2013. The mission had three elements; a primary seabird survey, shoreline debris detection, and targeted offshore debris survey. Post-processing of the data is ongoing, but initial results showed low debris densities offshore and pockets of higher debris density at “catcher” beaches onshore. These onshore results will be “ground-truthed” using field observations from shoreline survey teams, allowing for a clear analysis of the UAS’ effectiveness.

In FY2013, the program also provided funding support to University of Hawaii, through NOAA’s Joint Institute for Marine and Atmospheric Research (JIMAR) Cooperative Institute, looking at debris accumulation on Tern Island and identifying how those trends are impacted by ocean forcing factors, such as waves and currents.

Economic impacts

Marine debris is a persistent problem that may alter the value of recreational areas, such as beaches, but few studies have attempted to estimate these economic costs. To fill this knowledge gap, the MDP provided funding in FY2012 to Industrial Economics, Inc. to conduct a preliminary study to estimate the costs of marine debris to beach visitors in and around Orange County, California. As part of the effort, Industrial Economics, Inc. will estimate how valuable local beaches are for these coastal communities and measure marine debris local beaches so that it can directly estimate the lost value generated by the presence of that debris. The MDP will use the study results to refine future marine debris economic cost assessments, and identify priority areas where marine debris prevention and removal efforts are needed.

Marine Debris Monitoring and Assessment Project

Over the last 2 years, the MDP has increased the number of partner organizations monitoring and assessing shoreline sites as part of the Marine Debris Monitoring and Assessment Project (MD-MAP), focusing efforts on regions impacted by Japan tsunami marine debris. The MD-MAP surpassed 150 monitoring sites in Alaska, British Columbia, Washington, Oregon, California, and Hawaii, and the program is expanding to other States in FY2014, starting with Virginia. In November 2013, the program published publicly-available standard techniques for assessing debris on shorelines, on water surfaces, at-sea, and in benthic environments.

Through the project, the MDP has collected baseline data that will help 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 that the MDP developed in 2013 to facilitate data analysis and regional comparisons of debris types, abundances, and trends.

5.5. *Regional coordination*

One of the MDP's most effective roles in the marine debris community is its coordination activities. The program has regional coordinators for Alaska, Washington, Oregon, California, Hawaii and the Pacific Islands, the Gulf of Mexico, the Caribbean, the East Coast, 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. The program's coordinators are in the process of working collaboratively with State and local agencies to draft and implement marine debris action plans that will aid States in preventing and reducing debris, as well as mitigating coastal impacts.

Workshops and action plans

The 2012-2013 period brought a renewed focus for the MDP on regional coordination and State action planning. The program identified a need for additional support on the East Coast and Gulf of Mexico, and hired regional coordinators for the Gulf of Mexico, Northeast, Southeast, and Caribbean regions. Given this region's susceptibility to hurricanes and tropical storms, the MDP's new regional coordinators will focus on action and response planning with state and local partners in these regions.

Throughout 2012 and 2013, the MDP, in partnership with the Alliance for the Great Lakes and Old Woman Creek National Estuarine Research Reserve, brought together a diverse group of stakeholders to develop a strategic plan for addressing land-based marine debris – the first of its kind for the Great Lakes region. Representatives from Federal, State and local agencies, as well as non-governmental organizations participated in three workshops organized by the MDP, identifying five major goals: Addressing science, policy, outreach and education, impact reduction through removal, prevention, and strategic partnerships. The group also identified specific actions under each goal and will finalize them in FY2014.

Since 2008, the MDP has supported the West Coast Governor's Alliance (WCGA), working closely with the WCGA Marine Debris Action Coordination Team, to draft a strategy that provides a framework to identify, assess, prevent, and reduce marine debris. The program funded two of the three workshops needed to bring the team together to outline and draft the strategy, and in June 2013, the WCGA Executive Committee approved it. The strategy will serve as a baseline to achieve debris reduction targets through removal and prevention efforts. The MDP also organized and supported several planning workshops on the West Coast in association with tsunami debris from Japan, including a workshop on invasive species held in August 2012 and a contingency planning table-top exercise for the State of Washington in November 2012.

In Alaska, the MDP worked with the State to use debris density data and impact assessments to help the State rank beaches and allocate resources for future cleanups. The prioritization will remain a resource for future cleanup planning in the marine debris community.

In April 2012, the MDP sponsored a 2-day workshop in Honolulu with Hawaii State and local partners devoted to updating the Hawaii Marine Debris Action Plan. The primary purpose of the meeting was to capture in the plan all that has taken place across the state since the roll-out in January 2010. In addition, there were presentations and discussions on The Honolulu Strategy: A Global Platform for Marine Debris Prevention and Management and Japan tsunami marine debris. The Honolulu Strategy is one of the key outcomes of the Fifth International Marine Debris Conference held in Honolulu in March 2011.

5.6 *Emergency response to severe marine debris events*

Japan Tsunami Marine Debris

On March 11, 2011, an earthquake with a magnitude of 9.0 rocked the country of Japan, triggering a tsunami with waves up to 130 feet that devastated over 200 miles of land. The events produced a staggering loss of human life and property, and in its wake the problem of marine debris unfurled. As the tsunami receded from land, it washed much of what was in the inundation zone back into the ocean. Heavier materials sank closer to shore, while buoyant materials went on to make up the debris fields initially captured by satellite imagery and aerial photos of the waters surrounding Japan immediately after the tsunami. In the months that followed the tsunami, it became apparent that the untold amount of property loss was to become a marine debris issue not just for Japan, but also for its neighbor across the Pacific, the United States.

Throughout 2012 and into 2013, the MDP's attention focused largely on responding to Japan tsunami marine debris (JTMD). The MDP led Federal efforts to collect data on JTMD quantity, location, and movement; assess potential impacts; and plan for efforts to reduce possible impacts to our natural resources and coastal communities. The efforts undertaken by NOAA include a wide range of activities from detection and modeling, to establishing a debris sightings database and visualization, to monitoring and removal.

The program recognized the need for additional funding for cleanup efforts in response to tsunami debris. In June 2012, the MDP allocated \$50,000 for debris projects to each of the impacted States – Alaska, Washington, Oregon, California, and Hawaii – to aid in removal and cleanup efforts. Then, in December 2012, Japan provided \$5 million to the United States, through the MDP, with the intent to support marine debris response efforts, such as removal of debris, disposal fees, cleanup supplies, detection and monitoring. NOAA continues to work closely with the States to determine immediate needs. The MDP provided an initial sum of \$250,000 to each of the affected States (Alaska, Washington, Oregon, California and Hawaii), with many States requesting additional funding. NOAA holds the balance in reserve to distribute on a case-by-case basis, as needs arise.

Many partner agencies, including those in the IMDCC, have supported and engaged in NOAA's efforts, as well as contributed technical expertise and resources. The MDP has produced a full report on interagency activities, which may be viewed at http://marinedebris.noaa.gov/sites/default/files/Japan_Tsunami_Marine_Debris_Report.pdf.

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. This debris poses hazards to navigation, commercial fishing grounds, and sensitive ecosystems.

NOAA is leading efforts with Federal, State, and local partners to collect data, assess the debris, and reduce possible impacts to our natural resources and coastal communities. After the initial emergency response, the NOAA MDP pulled together State and local agencies in impacted States to determine needs, coordinate debris response activities, and begin initial assessments. The program worked with partners to develop a model showing areas where debris most likely accumulated and analyzed sonar and LiDAR survey data to find submerged debris.

In the Disaster Relief Appropriations Act of 2013, Congress provided the program with \$4.75 million to locate and remove the marine debris Sandy generated. The program will continue activities in FY2014 with a combination of aerial, underwater, and shoreline surveys necessary to assess the quantity and location of marine debris in the impacted coastal areas. These assessments allow NOAA to estimate the debris' impacts to economies and ecosystems, identify priority items for removal, develop best removal practices, and support limited removal efforts.

6.0 Review of U.S. Coast Guard programs

Since the filing of its last report with Congress on the status of USCG marine debris activities in 2010 and 2011, the USCG has continued to play an important role in the prevention and reduction of marine debris. Here, the USCG discusses the programs carried out in 2012 and 2013 which reflect its sustained commitment to eliminating this persistent problem.

The USCG combats ship-sourced marine debris by enforcing the vessel-generated waste provisions of MARPOL, APPS, and the regulations issued there under. The 2012-2013 period saw further development of the USCG waste reception facilities program and its domestic and international outreach efforts. Through its port state control examination and domestic inspection programs, the USCG ensured compliance with MARPOL and the U.S. laws and regulations implementing it.

Where the USCG has statutory authority, USCG Captains of the Port (COTP) may place on hold vessels which pose a unique pollution risk. In furtherance of its commitment to environmental stewardship, the USCG assists its interagency partners in the identification and removal of marine debris in areas of particular ecological concern.

On behalf of the United States, in cooperation with its interagency partners, the USCG provides important leadership at the International Maritime Organization (IMO). New MARPOL Annex V amendments, prohibiting the discharge, with very few exceptions, of all Annex V wastes (i.e., ship-generated garbage – much of which would contribute to marine debris), came into effect on January 1, 2013.

In 2012, the USCG participated in a program of assistance sponsored by the IMO on Port Reception Facilities in the Mediterranean and Gulfs region, and in 2013 the USCG hosted a program of assistance on Port Reception Facilities (PRFs) in the Caribbean region, bringing together delegates from 13 Caribbean nations and over 30 experts on ship's waste from around the world for a seminar dedicated to preventing pollution from ships and providing adequate reception facilities.

The USCG also continued its cooperation with international partners through the ISO to develop industry-wide standards as chair of an ISO work group to develop waste management standards. ISO 21070, Management and Handling of Shipboard Garbage, was published in 2011 and in 2013 the standard was identified for work on a revised edition to include new MARPOL Annex V provisions. ISO International Standard 16304, Port Waste Reception Facilities, was published in 2012 and is also slated for revisions.

The USCG continues to educate mariners about the environmental and legal consequences of marine debris deposition by promoting marine debris awareness among the regulated public through its Sea Partners Campaign outreach program and in partnership, under a Memorandum of Understanding, with the North American Marine Environmental Protection Association. Taken together, the USCG's anti-marine debris activities are an essential part of the Federal Government's effort to combat the pervasive problem of marine debris.

6.1 Compliance and Enforcement

The USCG continues to administer a robust MARPOL compliance program for ships and to ensure 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 (PRF)

The USCG verifies that domestic waterfront facilities maintain the capability of receiving garbage and wastes from ships through its Certificate of Adequacy (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 CFR § 158.400. In the CY 2012-2013 reporting period the USCG conducted over 15,000 Facility Inspections each year.

The USCG 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 2012 the USCG conducted 422 facility inspections related to MARPOL Annex V and issued or renewed 237 COAs and in 2013 the USCG conducted 276 facility inspections related to MARPOL Annex V and issued or renewed 276 COAs. Currently there are 1290 U.S. ports and terminals that have been inspected and issued a COA.

The USCG continues its work to enhance compliance with MARPOL regulations at ports and facilities. The USCG initiates an investigation whenever a report of alleged inadequate reception facilities is received. The USCG performs thorough investigations to ensure that each identified facility is in compliance with the regulations or is taking corrective action to come back into compliance. In addition, the USCG responds to the Flag State of ships alleging inadequate facilities and provides a synopsis of its investigation and any action 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 2014.

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) and is provided to the IMO for publication on their Global Integrated Shipping Information System (GISIS) website which the USCG helped implement.

Ship-Generated Garbage: Shipboard Compliance and Enforcement

The USCG ensures compliance with MARPOL, APPS, and U.S. regulations related to marine environmental protection through inspections and boardings. The USCG inspects U.S. commercial vessels annually and examines foreign vessels through its port state control program. Inspectors may target suspected polluters for violations. For recreational and commercial fishing vessels that are not required by law to be inspected, boardings (such as domestic fisheries protection activities, marine sanctuaries protection activities, and random “at sea” boardings,

where appropriate) allow the USCG to verify environmental compliance. In 2012-2013 the USCG conducted over 144,000 boardings.

6.2 Debris Removal

The USCG's primary responsibility 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. This includes not only the actual discharge of oil and hazardous substances, but also cases which pose a substantial threat of discharge. The USCG's authority for responding to these incidents falls mainly under the Clean Water Act (CWA) for oil and the Comprehensive Environmental Response, Compensation, and Liability Act for other hazardous substances not covered under the CWA. Under each of these authorities, the USCG must determine that: (1) the vessels are discharging substances or pose a substantial threat to discharge, (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 incident. If the pollution can be mitigated from the vessel without its removal or destruction, this will be the primary option. The USCG also has authority under the Abandoned Barge Act to remove abandoned barges under certain circumstances. When deciding upon the appropriateness of removal in the case of abandoned barges or other vessels, the threat of continued pollution is also considered. When a vessel remains a possible source for continued discharge of oil or hazardous material, and additional damage to the environment or costs for cleanup would be incurred, vessel removal may be the most appropriate option.

In cases where vessels do not pose a pollution threat, the USCG coordinates with the U.S. Army Corps of Engineers (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. When State authority is acted upon, local USCG officials will monitor the status of the vessel and provide expertise to State and local officials to coordinate procedures for removal.

Marine Debris actions in the Gulf of Mexico coastal waters

USCG District 8 and local USCG units have worked to identify derelict vessels and barges and are working with Federal partners and local and State partners to 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. The list includes just over 200 potential pollution threats that encompass all three States of Mississippi, Alabama and Florida. The USCG has established a plan of action to mitigate the threat and will also work with local NOAA Marine Debris program officials and local and State agencies to access grant money so that the USCG can remove the threat of pollution, and local/State authorities can remove and dispose of the vessel.

Marine Debris actions in the Pacific

Coast Guard District 11 Coordination with Federal, State & local partners

Marine Debris Removal Associated with West Sacramento LASH Barges. On July 12, 2013, USCG Sector San Francisco received notification from EPA of a report by the California Department of Recycling and Recovery (CalRecycle) of an illegal disposal site at the Port of Sacramento near the City of West Sacramento, CA. CalRecycle conducted initial assessments of the 41 disposal sites. The survey showed multiple LASH Lighters, a dry dock, and several abandoned vessels to contain an unknown quantity of oil, hazardous substances, and low-level radioactive materials. Given the abundance of pollutants and contaminants, CalRecycle required USCG assistance to fully mitigate the pollution threat.

Following a site assessment that occurred on August 13, 2013, Sector San Francisco determined the site poses a substantial threat to the environment. Sector San Francisco prepared a Federal On-Scene Coordinator's Decision Memo documenting access to both the Oil Spill Liability Trust Fund and Comprehensive Environmental Response Compensation and Liability Act fund to initiate response actions designed to fully mitigate the pollution threat. Once the pollution threat was mitigated by several USCG units, CalRecycle was able to continue removing the 20 barges and associated dry dock from the port.

Marine Debris Removal Associated with the Oakland Estuary Project

On August 24, 2012, CalRecycle sent a letter to USACE, USCG, and EPA requesting their participation in a joint venture raising, evaluating, assessing, and removing abandoned wrecks and other marine debris from the Oakland Estuary. The abandoned wrecks and marine debris were located throughout the Oakland Estuary, including the shoreline along Coast Guard Island and the San Leandro Bay. The EPA offered to be the lead Federal agency with the Army Corps and District-11 Coast Guard units offering resources and support to the effort. USCG gave EPA authority to be the Federal Oil Spill Coordinator (FOSC) in the Coastal Zone for the assessment and removal of hazardous material, but retained FOSC authority for all oil. The site consisted of four sunken abandoned wrecks and other clusters of marine debris containing hazardous substances situated in the Oakland Estuary. One of the vessels that posed a threat to the environment was the 150' T/V Respect. The US EPA contracted a local OSRO to remove sediment from inside the Respect as part of its preparation for salvage. During the sediment removal, a fuel tank was discovered along with 31,000 gallons of oil laden sediment. D11 units assisted in the raising of the Respect and the removal of the oil laden sediment. At the conclusion of this joint initiative, 72 derelict vessels were removed, 1,700 cubic yards of contaminated sediments, and 10.5 tons of hazardous materials.

United States Coast Guard (USCG) Pacific Area Command (PACAREA) actions related to Japan Tsunami Marine Debris (JTMD)

PACAREA Prevention and Incident Management members participated in bi-weekly, then monthly, and finally bi-monthly JTMD update conference calls that were led by the NOAA Office of Response and Restoration. USCG units in the Pacific Theatre requested navigation warnings for reported debris that potentially posed a risk to safe navigation. USCG aviation

assets were utilized to conduct over-flights (when possible and in conjunction with other sorties/missions) to verify reports of significant debris sightings. USCG units in PACAREA relayed all reports of potential JTMD to disasterdebris@noaa.gov.

USCG PACAREA units from District-11, District-13, District-14, and District-17 worked with local, State and Federal partners in the region on JTMD efforts, led by NOAA, to monitor, identify and mitigate associated risks from JTMD. 1,969 reports were submitted to the DisasterDebris@noaa.gov site since initiated in late December 2011, and included 816 at Sea Sightings (4 Confirmed JTMD) and 1,153 Shoreline Sightings (35 Confirmed JTMD). The most notable JTMD related event was the sinking of the Japanese Fishing Vessel RYOU-UN MARU by Coast Guard Cutter ANACAPA in April 2012.

Interagency Work in the Papahānaumokuākea Marine National Monument

The USCG and Papahānaumokuākea Marine National Monument (PMNM) staffs continued throughout the 2012-2013 reporting period to work closely to identify marine debris in the Northwestern Hawaiian Islands. In addition to the living marine resources statutory missions, USCG D-14 aircrews search for marine debris while engaged in dedicated law enforcement missions. In addition, PMNM staff periodically accompanies pre-scheduled USCG surveillance flights within the Monument area.

Work with the U.S. Army Corps of Engineers

The USCG and USACE continue to work closely at the national and local levels coordinating the removal of marine debris. Coordination among the agencies is essential to ensure maritime mobility and safety is maintained throughout our Nation's waterways. The USACE has the primary responsibility for removing wrecks and other obstructions from the navigable waters of the United States. The USACE has also issued a general permit (i.e., Nationwide Permit 22) under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act to authorize the removal of vessels from navigable waters. While the USCG may assist with this effort, and may take the lead when oil or hazardous material is involved, its primary responsibility is to ensure the proper navigational marking of the wreck or obstruction. As a member of the National Dredge Team/Regional Dredge Team (NDT/RDT), the USCG is working with the USACE to consider development of a protocol for spill response/post-marine casualty dredging operations. The goal of the proposed protocol is to establish post-casualty dredging procedures in potentially contaminated areas, develop joint agency agreements, determine a range of contaminant sources and contents, and institute post-cleanup and long-term monitoring in order to study effects on the environment. The NDT plans to continue addressing this proposed protocol.

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 multinational 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 U.S. led the effort to bring the Wider Caribbean Region special area discharge restrictions into effect for MARPOL Annex V on May 1, 2011, and MEPC's adoption of multiple amendments to Annex V in July 2011. 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 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 2012, the USCG entered into a Memorandum of Agreement with the North American Marine Environmental Protection Association (NAMEPA) to work together on outreach and education materials to industry and the boating public. In 2013, NAMEPA, with USCG assistance updated guidance to mariners on new MARPOL regulations and impacts of marine debris from ships. The USCG Auxiliary reports its vital operational hours for the Sea Partners Campaign in its reporting database, AUXDATA. In 2012 and 2013 combined, over 16,000 hours were committed toward the Sea Partners Campaign.

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 2012 and 2013.

Table 1: FY2012 to FY2013 NOAA/U.S. Coast Guard/USACE Marine Debris Funding

AGENCY	FY2012	FY2012 non-Federal Match	FY2013	FY2013 non-Federal Match	General Activity Description	Budget Line
DOC/NOAA	\$4,618,000	\$3,069,079	\$4,658,000	\$2,087,973	Research, removal, outreach and education, coordination, prevention, database development, partnerships, grants, and contracts.	Marine Debris
U.S. Coast Guard*	\$246,453,000		\$240,668,000		See Section 6 for a comprehensive discussion of USCG activities.	Marine Environmental Protection
USACE	\$16,554,250		\$16,570,860		Drift and Debris Removal Program authorized by Section 202 of WRDA 1976 (Public Law 54-587)	Drift and Debris Removal

* 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 many IMDCC agencies conduct daily 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. Here are a few specific highlights regarding agency marine debris funding:

- EPA's water program and Pacific Southwest region put seed money toward trash prevention and reduction efforts, as well as marine debris research and efforts to address debris impacts from severe weather events and the tsunami in Japan.
- The U.S. Navy provided \$3,169,000 and \$2,285,000 in FY12 and F13 respectively for upgrades and maintenance of solid waste equipment on Navy ships.
- DOS provided funding for public diplomacy activities that addressed marine debris.

Appendices

- A. 2008 Recommendations
- B. Overview of the Interagency Marine Debris Coordinating Committee
- C. Federal Authorities by Agency
- D. NOAA Marine Debris Program-funded projects

Appendix A. 2008 Recommendations

The following recommendations are from the 2008 IMDCC Report to Congress (National Oceanic and Atmospheric Administration. *2008 Interagency Report on Marine Debris Sources, Impacts, Strategies & Recommendations*. Silver Spring, MD. 62pp.).

MARINE DEBRIS PREVENTION

Education and Outreach

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

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

1.3: Federal agencies should engage and partner with State, local, tribal and non-governmental entities to support coordinated events, such as Earth Day, the International Coastal Cleanup, and other activities that have relevance to marine debris. These events should include nationwide educational and media outreach efforts to enhance awareness of sources and impacts of marine debris and to provide recommendations regarding specific actions that can be taken to prevent or reduce marine debris.

2. Legislation / Regulation / Policy

2.1: 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.

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

2.3: The IMDCC should coordinate a correspondence group of State, local, and Tribal Governments to determine the marine debris-related authorities and policies at those levels, including both those that address land-based sources of marine debris and those that address ocean-based sources. The correspondence group will be an important component in the IMDCC's gap analysis of regulatory and non-regulatory authorities that can be used to promote marine debris prevention.

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

3. Incentive Programs

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

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

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

RESPONSE TO DEBRIS ALREADY IN THE ENVIRONMENT

4. Enforcement

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

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

5. Cleanups

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

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

5.3: Federal agencies should partner with State, local, tribal, and nongovernmental entities to continue to support and conduct cleanup efforts.

RESEARCH AND DEVELOPMENT

6. Research

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

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

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

6.4: Federal agencies, coordinating through the IMDCC, should sponsor and conduct research regarding the attitudes and practices of users of products that contribute to marine debris. In particular, such research should (a) investigate the willingness to alter attitudes and practices in a manner that would reduce marine debris; (b) identify preferences with regard to potential incentive programs and which types of incentives are most likely to produce positive responses; and (c) develop and test incentive programs intended to alter attitudes and/or practices among users of products that contribute to marine debris.

7. Technology Development

7.1: Federal agencies should partner with State, local, tribal, and nongovernmental 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.

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

CROSS-THEME

8. Fostering Coordination

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

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

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

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

Appendix B. Overview of the Interagency Marine Debris Coordinating Committee

Table B.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.

Table B.1. Overview of the Interagency Marine Debris Coordinating Committee

DRIVERS	ACTIVITIES	OUTPUTS	OUTCOMES
<p>Statutory and Regulatory</p> <p>Public Interest (e.g., news stories on Pacific Trash Gyre)</p> <p>Concern for ecological, human health and safety, economic, and social impacts</p>	<p>Environmental Protection Agency MPPRCA, MPRSA, SPA, CWA, RCRA, PPA</p> <p><i>Address land- and ocean-based sources through solid waste, stormwater, non-point source, and ocean regulations, voluntary programs, and outreach.</i></p>	<p>Environmental Protection Agency</p> <ul style="list-style-type: none"> • Publications (BMPs, factsheets, reports) for municipal, industrial, and general audiences on solid waste, stormwater, and marine debris • Non-point source and marine debris prevention toolboxes • Research on marine debris found on beaches and in ocean 	<p>Increased understanding of sources, impacts, and mitigation effort related to marine debris</p> <p>Improved public awareness of the marine debris impacts and actions that can and should be taken to reduce marine debris pollution</p> <p>Decreased amount of material becoming marine debris</p> <p>Stronger protection of marine environment from pollution and marine debris</p> <p>Increased international coordination to manage marine debris</p> <p>Cleaner oceans, coasts, and waterways</p>
	<p>Department of Commerce – National Oceanic and Atmospheric Administration MDRPRA, MPPRCA, MSRA, CZMA, ESA, MMPA, DAA, NMSA, CRCA</p> <p><i>Address marine debris through mapping, identification, impact assessment, removal and prevention, focusing on living marine resources and navigation. Reduce and prevent loss of fishing gear. Public outreach and education.</i></p>	<p>Department of Commerce - National Oceanic and Atmospheric Administration</p> <ul style="list-style-type: none"> • Federal Information Clearinghouse • Research and assessment of marine debris impacts to living marine resources • Topic-specific workshops for marine debris researchers and practitioners • Nets to Energy and Fishing for Energy partnerships • Over 150 grants and contracts since 2005 	
	<p>Department of Defense</p> <p>U.S. Army Corps of Engineers RHA, FCA</p> <p><i>Obstructions in navigable waterways.</i></p> <p>Navy <i>Compliance with APPS for solid waste management and disposal of plastics from vessels. Preparation of vessels used as artificial reefs in accordance with Nat'l BMPs.</i></p>	<p>Department of Defense</p> <p>U.S. Army Corps of Engineers</p> <ul style="list-style-type: none"> • Report on obstructions removed from navigable waterways <p>Navy</p>	
	<p>Department of Homeland Security - USCG MPPRCA, APPS, DAA, SPA, MDRPRA</p> <p><i>Compliance and enforcement for ship-generated garbage.</i></p>	<p>Department of Homeland Security – USCG</p> <ul style="list-style-type: none"> • Certification of adequacy for port and waterfront facilities • Inspections aboard vessels to ensure compliance with ship-generated garbage regulations • Detection and investigation of ship-generated garbage violations • Annex V revisions 	
	<p>Department of the Interior</p> <p>Fish and Wildlife Service ESA, MMPA, DAA, NWRSA and NWRSA, AFCA</p> <p><i>Cleanup of shoreline/nearshore habitats. Impacts on fish/wildlife resources and habitats. Management of National Wildlife Refuge and National Monuments.</i></p> <p>Bureau of Safety and Environmental Enforcement OCSLAA, OPA, EPAct</p> <p><i>Address marine debris from regulated facilities and operations through regulations, compliance, enforcement, voluntary programs, and partnerships with the offshore industry.</i></p>	<p>Department of Interior</p> <p>Fish and Wildlife Service</p> <ul style="list-style-type: none"> • Reports on cleanups • ESA reports and mitigation action plans • Reports on Refuge status and conditions <p>Bureau of Safety and Environmental Enforcement</p> <ul style="list-style-type: none"> • Issuance/enforcement of pollution prevention and control regulations through warnings, fines, and facility/component shut-ins • Site cleanup/removal or reefing of hurricane destroyed/end-of-life platforms • Industry structural design standards/recommended practices revisions, and incorporation of revisions into notices/regulations, to improve rig station keeping and ensure platform survivability during hurricanes 	
	<p>Department of Justice</p> <p><i>Judicial enforcement of environmental violation.</i></p>	<p>Department of Justice</p> <ul style="list-style-type: none"> • Fines and other penalties for marine debris/garbage violations 	
	<p>Department of State</p> <p><i>MARPOL Annex V and other relevant international agreements. Assistance to other countries on controlling land-based sources of pollution and derelict fishing gear.</i></p>	<p>Department of State</p> <ul style="list-style-type: none"> • Annex V revisions • Assistance to other countries on controlling land-based sources of pollution 	
	<p>Marine Mammal Commission MMPA</p> <p><i>Research and recommendations on impacts to marine mammals.</i></p>	<p>Marine Mammal Commission</p> <ul style="list-style-type: none"> • Related research and management publications • Recommendations to Federal agencies on protecting/conserving marine mammals • Distribution of information on biological impacts of marine debris 	

Appendix C. Federal Authorities by Agency

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

Authority	Explicitly mentions marine debris	Addresses sources and items that may become marine debris	Addresses entities that may be impacted by marine debris	Regulatory
Marine Debris Act, 33 U.S.C. 1951 et seq.	NOAA, USCG			
Coral Reef Conservation Act of 2000, 16 U.S.C. 6406(b)(3)	NOAA			
Coastal Zone Management Act of 1972, 16 U.S.C. 1456(b)	NOAA			
Marine Plastic Pollution Research and Control Act 33 U.S.C. 1914-1915	EPA, NOAA	EPA, NOAA, USCG		
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9601, 9604, 9607		EPA		X
Driftnet Act Amendments of 1990, 16 U.S.C. 1826		NOAA, FWS, DOS		X
Marine Protection, Research and Sanctuaries Act, 33 U.S.C. 1401–1445 (Ocean Dumping Act) Title I & II		EPA		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
Shore Protection Act, 33 U.S.C. 2603		EPA, USCG		X
Clean Water Act, 33 U.S.C. 1321		EPA		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		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
Rivers and Harbors Act of 1899, 33 U.S.C. 403 407, 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		USACE		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
navigation, and flood control, and for other purposes. P.L. 94-587, Sec. 202				
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
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			FWS	
Anadromous Fish Conservation Act, 16 U.S.C. 757a et seq.			FWS	
Endangered Species Act of 1973, 16 U.S.C. 1531 et seq.			NOAA, FWS	X
Marine Mammal Protection Act, 16 U.S.C. 1402			NOAA, MMC, FWS	X

Table 2: NOAA Marine Debris Program-funded Education and Outreach Projects

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Gulf of Maine Lobster Foundation	Derelict Fishing Gear and Industry Assessment in the Gulf of Maine	2012	\$149,982	\$201,232	Maine, Massachusetts, New Hampshire
Anchorage Museum	GYRE - A Museum Exhibit with Debris as Material and Message	2013	\$65,000	\$436,000	Alaska
Monterey Bay Aquarium	Ocean Plastic Pollution Summit for Teachers	2013	\$52,306	\$114,791	California
Sea Research Foundation	Teen Marine Debris Initiative	2013	\$20,714.65	\$20,714.65	Connecticut
Florida Fish and Wildlife Conservation Commission	Florida Lobster Fishery Research Converted to Public Information	2013	\$ 49,443	\$99,330	Florida
University of Georgia	Project SORT: Using Marine Debris Surveys to Encourage Environmental Stewardship	2013	\$63,920	\$127,842	Georgia, North Carolina, South Carolina
Ocean Conservancy	Talking Trash and Taking Action Campaign	2013	\$100,000	---	National
Oregon State University	Engaging Students in Marine Debris Efforts Utilizing a Comprehensive, Integrated STEAMSS Curriculum	2013	\$56,880	\$ 114,526	Oregon
Rozalia Project for a Clean Ocean	Marine Debris Prevention through Education and Outreach	2013	\$ 50,000	\$150,000	VT, ME, NY, NH, MA, RI, CT, PA, VA, CA, WA

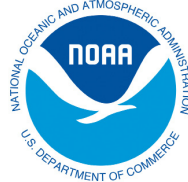
Table 3: NOAA Marine Debris Program-Funded Removal Projects

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Provincetown Center for Coastal Studies	Cape Cod Bay Derelict Gear Assessment and Retrieval Program	2012	\$ 120,665.00	\$ 206,600.00	Massachusetts
Virginia Institute of Marine Science	Removal of Crab Pots from Known Hotspots in Virginia	2012	\$50,000	\$100,118	Virginia
City of Tenakee Springs	Tenakee Springs Debris Removal	2012	\$45,000	\$94,734	Alaska
Island Trails Network	Tugidak Island Marine Debris Removal	2012	\$124,316.14	\$256,742.14	Alaska
San Francisco Baykeeper	Point Molate and Contra Costa County Removal	2012	\$52,030	\$104,060	California
University of Florida	Debris Removal in Sea Turtle and Shorebird Habitat of NW Florida	2012	\$113,750	\$270,676	Florida
Broward County, FL	Broward County Tire Removal	2012	\$250,000	\$2,078,434	Florida
Alliance for the Great Lakes	Belle Isle Marine Debris Removal and Prevention	2012	\$53,555	\$107,142	Michigan
Cornell Cooperative Extension Association	Long Island Sound Derelict Lobster Gear Assessment, Removal and Prevention	2012	\$149,999.73	\$308,378.86	New York
Northwest Straits Commission	Puget Sound Derelict Fishing Net Removal	2012	\$249,879.15	\$499,862.30	Washington
Richard Stockton College	Derelict Crab Trap Removal in Mullica River/Great Bay Estuary	2012	\$114,965	\$236,368	New Jersey

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
Dauphin Island Sea Lab	Derelict Vessels and Habitat Impairment in Dog River Alabama	2013	\$99,766.25	\$201,729	Alabama
Sitka Sound Science Center	Tsunami debris removal and Education in and around Sitka, AK	2013	\$120,000	\$240,000	Alaska
Alaska Marine Stewardship Foundation	Debris Removal in Bering Sea Communities	2013	\$210,000	\$420,000	Alaska
Wiyot Tribe	Wiyot Tribe Marine Debris Removal Project	2013	\$125,000	\$170,778	California
Coastal Cleanup Corporation	Elliott Key, Florida Sea Turtle Nesting Habitat Restoration	2013	\$16,953	\$43,619	Florida
Kaho'olawe Island Reserve Commission	Marine Debris Removal on Kaho'olawe	2013	\$ 100,529.98	\$230,952	Hawaii
Hawaii Wildlife Fund	Hawaii Island Marine Debris Removal Project	2013	\$45,000	\$101,640	Hawaii
Hofstra University	Debris Removal from the Salt Marsh at Lido Beach	2013	\$75,000	\$169,138	New York
North Carolina Coastal Federation	Recycling North Carolina Derelict Crab Pots into Oyster Reefs	2013	\$35,576	\$77,646	North Carolina
Corp. for the Conservation of the San Juan Bay Estuary	Volunteer Marine Debris Removal at Condado Lagoon	2013	\$40,000	\$80,000	Puerto Rico
Northwest Straits Commission	Puget Sound Derelict Fishing Net Removal	2013	\$99,994.80	\$199,991.59	Washington

Table 4: NOAA Marine Debris Program-Funded Research Projects

Recipient	Project Title	Funding Year	Federal Funding	Total Project Cost	State
NOAA Gulf of the Farallones National Marine Sanctuary	Shoreline Monitoring in Gulf of the Farallones National Marine Sanctuary	2012	\$43,723.51	\$43,723.51	California
NOAA Olympic Coast National Marine Sanctuary	Shoreline Monitoring in Washington State	2012	\$53,336	\$53,336	Washington
Virginia Institute of Marine Science	Testing Biodegradable Panels and O-rings for Lobster Pots	2012	\$78,872	\$157,746	Massachusetts, Maine
University of Washington, Joint Institute for the Study of Atmosphere and Ocean	Effect of wind-driven mixing on plastic debris	2012	\$61,521	\$61,521	Washington
University of Hawaii, Joint Institute for Marine and Atmospheric Research	Seasonal Fluctuations in Northwestern Hawaiian Islands Marine Debris Deposition	2012	\$33,000	\$33,000	Hawaii
University of Maryland	Analysis of microplastics in Chesapeake Bay and coastal mid-Atlantic water samples	2012	\$30,000	\$30,000	Maryland
University of California, Davis	Ecotoxicological effects of microplastics and sorbed priority pollutants in aquatic foodchains	2013	\$200,000	\$420,000	California, National
Virginia Institute of Marine Science	Influence of Environmental Conditions on Chemical Leaching and Sorption to Microplastic Debris	2013	\$173,497	\$ 347,657	Virginia
Sea Education Association	Investigating selective grazing by copepods on microplastic particles	2013	\$ 117,751	\$238,950	Massachusetts



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