

A COLLABORATIVE EFFORT OF THE INTERAGENCY POLICY COMMITTEE ON PLASTIC POLLUTION AND A CIRCULAR ECONOMY

JULY 2024



# Letter from the Co-Chairs of Interagency Policy Committee on Plastic Pollution and a Circular Economy

Plastic production around the globe has doubled over the past two decades. Plastic waste has also doubled in that time, and is now found almost everywhere on our planet, from floating garbage patches in the Pacific Ocean to nearly every waterline, coastline, and shore line, including beaches and river banks. Plastics are turning up in the stomachs of whales, birds, and other animals that ingest them. Communities near plastic production and processing facilities are confronted with toxic air emissions and chemical releases. Researchers are sounding alarm bells over the growing presence of microplastics in the human body, and are concerned that the ingestion of microplastics and exposure to plastics-related pollution are posing a growing risk to public health. And the production and transport of plastics are contributing to greenhouse gas pollution and exacerbating climate change.

With its multitude of environmental impacts across its supply chain, broad global effects, and severe public health consequences, plastic pollution has become one of the most pressing and consequential environmental problems in the U.S. and around the globe. Tackling plastic pollution and its associated impacts will require unprecedented action at every stage of the plastic lifecycle—from reining in the pollution from petrochemical production that is poisoning communities and driving climate change, to reorienting infrastructure to ensure dramatic increases in recycling and reuse, to investing in innovative materials to replace the pervasive use of plastics in our society. The President is committed to taking ambitious actions throughout the full lifecycle of plastics to end plastic pollution and is calling upon the global community to do the same, with the goal to reduce the global production and consumption of virgin plastics.

This full lifecycle approach is a critical element of President Biden's and Vice President Harris's environmental and public health agenda, and complements other key actions the Administration has taken to protect clean air and clean water. The Administration, for example, has implemented a historic ban on ongoing uses of asbestos—a known carcinogen linked to more than 40,000 deaths in the U.S. each year—and is working with communities to replace every lead pipe in the country, has set new standards to eliminate "forever chemicals" from drinking water, and has tightened pollution controls for chemical plants.

In 2023, to mobilize and coordinate a Federal effort to confront plastic pollution, the Administration launched the Interagency Policy Committee on Plastic Pollution and a Circular Economy (IPC), of which we are proud to serve as co-chairs. The IPC was formed and operates with the understanding that the scale and breadth of the plastic pollution challenge require not only an all-of-government effort at the Federal level, but sustained and coordinated work with the state, local, and Tribal governments, local communities and other stakeholders.

Under President Biden's leadership, Federal departments and agencies are working to reduce single-use plastics in government operations, drive down toxic emissions and chemicals of concern in plastic production, and fund historic investments to improve solid waste management while cleaning up existing pollution. These early steps are important for building momentum for the scale of action and progress needed across all levels of government to address plastic pollution and its associated impacts.

In Mobilizing Federal Action on Plastic Pollution: Progress, Principles, and Priorities, the Federal government is—for the first time—formally acknowledging the severity of the plastic pollution crisis and



the scale of the response that will be required to effectively confront it. In particular, the report reaches two key topline findings:

- 1. Successfully combatting plastic pollution requires the United States to take a comprehensive approach that addresses the impacts of plastic throughout the entire lifecycle from production to end of life; and
- 2. The scope, scale, and complexity of plastic pollution require coordinated action from all levels of government.

This report complements and supports other key domestic and international efforts to combat plastic pollution, including developing an international agreement that is commensurate to the scale and breadth of the plastics problem. Reaching a strong global agreement can help turn the tide against the sea of plastic pollution that is rising around the world.

Although the plastic pollution challenge remains severe and daunting, we are optimistic that—by steadily and rapidly building momentum through the opportunities and actions outlined in this report—the U.S. can mobilize the all-hands-on-deck response that is needed to meet this profound environmental and public health challenge.

Sincerely,

**Brenda Mallory** 

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# **Background**

# **About the Interagency Policy Committee on Plastic Pollution and a Circular Economy**

The Interagency Policy Committee on Plastic Pollution and a Circular Economy (IPC), cochaired by the White House Council on Environmental Quality (CEQ) and the White House Office of Domestic Climate Policy (CPO), was <u>announced</u> by the White House in April 2023 to advance efforts to combat plastic pollution<sup>1</sup> across the plastic lifecycle, prioritizing public health, economic development, and environmental justice.<sup>2</sup> The IPC seeks to coordinate federal efforts on plastic pollution, to help ensure that the benefits from acting on plastic pollution—including minimized human exposure to harmful chemicals, and protection of clean air, water, coastal and marine environments—are available to all, including communities with environmental justice concerns.

#### **IPC Participants**

The following United States federal departments, agencies, bureaus, and offices are engaged in the IPC and have contributed to this document:

- CBP: Customs and Border Protection
- CPSC: Consumer Product Safety Commission<sup>i</sup>
- DOC: Department of Commerce
  - o DOC/Census: Census Bureau
  - o DOC/ITA: International Trade Administration
  - o DOC/NIST: National Institute of Standards and Technology
  - o DOC/NOAA: National Oceanic and Atmospheric Administration
- DOD: Department of Defense
- DOE: Department of Energy
- DOI: Department of the Interior
- DOJ: Department of Justice
- DOL: Department of Labor
- DOT: Department of Transportation
- ED: Department of Education
- EPA: Environmental Protection Agency
- GSA: General Services Administration

i CPSC staff contributed to this report. It has not been reviewed or approved by, and does not represent the views of, the Commission.



- HHS: Department of Health and Human Services
  - o HHS/CDC: Centers for Disease Control and Prevention
    - HHS/CDC/NIOSH: National Institute for Occupational Safety & Health
    - HHS/CDC/NCEH: National Center for Environmental Health
    - HHS/CDC/ATSDR: Agency for Toxic Substances and Disease Registry
  - o HHS/CMS: Centers for Medicare & Medicaid Services
  - o HHS/FDA: Food and Drug Administration
  - o HHS/NIH: National Institutes of Health
    - HHS/NIH/NIEHS: National Institute of Environmental Health Sciences
  - o HHS/OASH: Office of the Assistant Secretary for Health
- NASA: National Aeronautics and Space Administration
- NSF: National Science Foundation
- State: Department of State

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- USAID: Agency for International Development
- USDA: Department of Agriculture

Additional IPC participants from the Executive Office of the President include the Domestic Policy Council (DPC), the National Economic Council (NEC), the Office of Clean Energy Innovation & Implementation (OCEII), the Office of Science and Technology Policy (OSTP), OSTP's National Nanotechnology Coordination Office (NNCO), the Office of Management and Budget (OMB), OMB's Office of Federal Procurement Policy (OFPP), and the Office of the United States Trade Representative (USTR).

## **About the White House Council on Environmental Quality**

The White House Council on Environmental Quality (CEQ) was established within the Executive Office of the President by the National Environmental Policy Act of 1969 (NEPA). CEQ advises the President and develops policies on climate change, environmental justice, federal sustainability, public lands, ocean, and wildlife conservation, among other areas. For more information, please see: <a href="https://www.whitehouse.gov/ceq">www.whitehouse.gov/ceq</a>.

## **About the White House Office of Domestic Climate Policy**

The White House Office of Domestic Climate Policy (CPO) implements the President's domestic climate agenda, coordinating the whole-of-government approach to tackle the climate crisis, create good-paying, union jobs, and advance environmental justice. CPO coordinates the policy-making process with respect to domestic climate policy issues; coordinates domestic climate policy advice to the President; ensures that domestic climate policy decisions and programs are consistent with the President's stated goals and that those goals are pursued; and monitors implementation of the President's domestic climate policy agenda. For more information, please see: <a href="https://www.whitehouse.gov/cpo.">www.whitehouse.gov/cpo.</a>



#### **About this Document**

Mobilizing Federal Action on Plastic Pollution: Progress, Principles, and Priorities is the result of a collaborative effort of the IPC from 2023-2024. It includes information, opportunities, and principles that agencies across the Federal Government have provided and goals that agencies are working to achieve as appropriate under their respective authorities, missions, and consistent with applicable law. It aims to leverage existing federal authorities, strengthen interagency collaboration, and build upon current federal actions to identify additional opportunities federal agencies can undertake to combat plastic pollution. Two appendices accompany this document. They outline ongoing federal activities (Appendix A) and interagency working groups (Appendix B).



# **Introduction: The Plastic Pollution Crisis and Ongoing Efforts to Combat It**

After its introduction in the 1950s, plastic<sup>3</sup> transformed many aspects of modern society. Plastic opened up new possibilities for consumer and industrial usage, serving as an inexpensive, lightweight, versatile, durable, and sanitary material in the food, medical, technology, textile, and transportation industries. Modern sanitation systems, food security, and medical equipment advancements were made possible by innovations in plastic. However, due to the broad consequences of plastic production and consumption, our nation and global neighbors are now facing a plastic pollution crisis.

It has become clear that the reliance on plastic across the globe and in all economic sectors has a serious cost to public health and the environment that requires action. The exponential increase in plastic production and consumption has outpaced society's ability to properly manage this increasingly complex material and scale innovative solutions to holistically address its impacts. As a result, the annual amount of uncontrolled plastic waste released into the aquatic environment is estimated to reach 53 million metric tons by 2030. Experts have estimated that the equivalent of one garbage truck of plastic enters the ocean every minute. Plastic particles have been found in the deepest depths of the ocean, in the air above the highest points on Earth, and even within human blood and tissue. Plastic polymers and their affiliated additives are known to pollute air, soil, waterways, wildlife, and homes.

While littered plastic items on streets and in waterways are a familiar sight across the United States, less visible forms of pollution, such as hazardous air emissions from plastic production or end-of-life processing, can occur at every stage of the plastic lifecycle. Certain plastic particles and additives used in the production of plastic can contribute to adverse human health effects such as cancer, metabolic diseases, and disruptions to reproduction, development, and growth. <sup>14,15,16</sup> Exposure to these chemicals is particularly dangerous during vulnerable stages of life, including pregnancy, infancy, and childhood. The cumulative impacts <sup>17</sup> of plastic production and plastic pollution are disproportionately concentrated in communities that live near production facilities and disposal sites. <sup>18,19</sup> Many of the same communities are often overburdened by other types of environmental hazards associated with living near industrial manufacturing sites, such as air pollution, chemical exposure, and soil and groundwater contamination, which can exacerbate the harms caused by exposure to plastics pollution. <sup>20,21</sup>

The vast majority of plastic is made from extracted fossil fuels, <sup>22</sup> a main feedstock <sup>23</sup> in petrochemical facilities. Petrochemical facilities are projected to expand as demand for petrochemical products, such as plastic, continues to grow. This will contribute to more industrial pollution, increased plastic waste, and significant amounts of greenhouse gas emissions released throughout the plastic lifecycle. <sup>24,25</sup> Under business-as-usual production and management scenarios, plastic production may account for 15-31% of the global carbon budget by 2050, undermining efforts to keep global temperatures within a 1.5 degrees Celsius climate threshold. <sup>26,27,28</sup> These trends in growth are unsustainable and should be reversed.



"Plastic pollution is one of the most significant problems facing our country and the world, harming human health and environment, including communities already overburdened by pollution. Fossil fuel extraction, refining, plastics production and use increases the climate crisis and harmful pollution and waste. Emerging science also continues to reveal new health threats. We must combat plastic pollution from every angle and prevent it at every step of its lifecycle. Every action we take matters, because every day people are suffering from the impacts of plastic pollution."

-Administrator Michael S. Regan, EPA

Recognizing the growing risks of plastic pollution to public health and the environment, the Biden-Harris Administration has been working to build a whole-of-government approach to confront the problem and its associated impacts. From securing landmark investments in waste management infrastructure to strengthening pollution standards at chemical and plastic production facilities, the Administration is making major strides toward a cleaner and healthier nation—and recognizing that more work is needed to protect the environment, economy, and local communities.

To help mobilize and coordinate interagency actions on plastic pollution, in April 2023, the Biden-Harris Administration <u>announced</u> the formation of an Interagency Policy Committee on Plastic Pollution and a Circular Economy (IPC). IPC participants include experts across federal agencies and within the Executive Office of the President.

This document is a product of the IPC's dedicated interagency coordination and a critical first step in undertaking meaningful actions and considering long-term targets to effectively address pollution at key stages of the plastic lifecycle. It outlines both ongoing efforts within the United States Federal Government (Appendix A) and opportunities for further action. This document establishes the first United States Federal Government-wide strategy to address plastic pollution. It aims to enhance domestic initiatives that reinforce United States leadership in international efforts during an unprecedented period of global coordination on plastic pollution. <sup>29</sup>

Importantly, the IPC recognizes two essential topline findings:

- 1. To successfully combat plastic pollution, the United States must take a comprehensive approach that addresses the impacts of plastic throughout the entire lifecycle. From the extraction of raw materials used to create plastic polymers, such as fossil fuels, to pollution resulting from mismanaged waste, communities and the environment experience the escalating effects of a worldwide dependence on these materials. A national effort should involve meaningful cross-sector and cross-disciplinary engagement in actions that holistically address all stages of the plastic lifecycle and support a more circular economy.
- 2. The scope, scale, and complexity of plastic pollution require coordinated action from all levels of government. No single federal agency or level of government has sufficient authority or resources to successfully combat plastic pollution on its own.



United States federal agencies must continue to build a whole-of-government effort to confront plastic pollution, while also partnering with state, territorial, Tribal, and local governments to support actions and strategies that can be deployed at the regional, state, Tribal, or local level.

While the IPC recognizes that more work, collaboration, and investment are needed to spark a whole-of-society approach to address plastic pollution, this document serves as a foundation for federal action, outlining a path forward to comprehensively address, coordinate, and catalyze effective action on plastic pollution across the Federal Government and with partners abroad.



# **Progress: Advancing Efforts to Combat Plastic Pollution**

The Biden-Harris Administration is working to advance and expand efforts to combat plastic pollution, reduce the Federal Government's use of plastic, and, as appropriate, set new standards or regulations to prevent and decrease toxic emissions, discharges, and releases from plastic production processes. The Administration is committed to following the best available science on plastic pollution, and taking further action to prioritize environmentally sustainable solutions at each stage of the plastic lifecycle. Across the Federal Government, agencies and departments are spearheading efforts to address plastic pollution and reduce dependence on plastic in federal operations and agency programs. These actions advance the President's vision of prioritizing public health, economic development, and environmental justice.

### **Assessing and Reducing Pollution from Plastic Production**

Over 90% of plastic is derived from fossil fuels.<sup>30</sup> After extraction, oil, natural gas, and other fossil fuels are transported to refining and petrochemical facilities to be transformed into feedstocks, polymers, and pellets for plastic production.<sup>31</sup> Many of these sites are located in or near communities where people are confronted with daily emissions, discharges, and releases.<sup>32,33,34</sup> These communities have raised concerns about toxic exposure and its health impacts, including cancer.<sup>35</sup> For years, local, national, and international environmental groups and environmental justice advocates have worked to bring attention to these problems. They have called for action to address existing and prevent further harm to local communities from plastic production.<sup>36</sup>

Under President Biden's and Vice President Harris's leadership, federal agencies are taking steps to reduce pollution from the extraction of fossil fuels and production of plastic. This includes chemicals of concern and hazardous air pollutants (Box 1). There is much work to be done, but the Biden-Harris Administration is committed to ongoing engagement to help ensure that all communities are able to breathe clean air, drink clean water, and live in a healthy environment. The actions outlined in this document align with other government initiatives focused on human, environmental, and community health, including the Healthy People 2030 objectives.<sup>37</sup>



# **Box 1. Environmental Protection Agency: Actions that Address Pollution from Plastic Production and Advance Environmental Justice**

EPA has been diligently addressing the harmful pollution generated by plastic production processes and the uncontrolled release of plastic into the environment. In 2024, EPA finalized rules to reduce emissions of toxic air pollutants including <a href="ethylene oxide">ethylene oxide</a> and chloroprene, which will result in significant reductions to harmful air pollution in local communities near plastic production facilities, including communities with environmental justice concerns. In addition, EPA includes upstream pollution associated with plastic manufacturing in reporting requirements under its <a href="mailto:Toxics Release Inventory Program">Toxics Release Inventory Program</a> to track progress in eliminating or reducing specific chemicals used in plastic manufacturing. EPA has also started the process of prioritizing several chemicals of concern used in plastic production, such as <a href="mailto:vinyl chloride">vinyl chloride</a> and seven phthalate chemicals, for risk evaluations under the Toxic Substances Control Act. Additionally, EPA <a href="mailto:updated requirements">updated requirements</a> for facilities to plan for worst-case discharges of hazardous substances under the Clean Water Act. This action follows updates under the Clean Air Act to revise the <a href="mailto:Risk Management Program">Risk Management Program</a> to further protect vulnerable communities from chemical accidents. These actions complement Biden-Harris Administration efforts to reduce pollution from oil and gas extraction, such as EPA's Final Rule for Oil and Natural Gas Operations.

### **Innovating Materials and Product Design**

Agencies are also advancing work to explore alternative materials and processing methods, such as through the National Institute of Standards and Technology's <u>Circular Economy Program</u>, which invests in safe materials, manufacturing, and product design. The Department of Energy's <u>Strategy for Plastics Innovation</u> (SPI) focuses resources from across the Department to create a comprehensive program to accelerate innovations that will dramatically reduce plastic waste in the ocean and landfills. One of the SPI's strategic goals is to develop and manufacture new and renewable plastic and bioplastic that is designed for either recycling or improved plastic end-of-life outcomes, including biodegradability, and can be manufactured at scale domestically. The Department of Agriculture also conducts regular research on biopolymers, alternative feedstocks, and reduced pollution production processes in support of a transition away from fossil fuel-based plastic <sup>38</sup> Together, these actions within the Federal Government will promote reduction of plastic pollution, more efficient end-of-life processes, and a more circular economy. <sup>39</sup>

## **Decreasing Plastic Waste Generation**

In support of the President's direction in Executive Order (E.O.) 14057 (Box 2), federal agencies are leading by example to reduce single-use plastic (as defined by GSA<sup>40</sup>) within their own operations and through new initiatives. In accordance with E.O. 14057 Section 207, all federal agencies are required to divert at least 50% of non-hazardous solid waste, including plastic, from landfills annually by fiscal year 2025 and 75% by fiscal year 2030. The Department of the Interior announced Secretary's Order 3407 and the General Services Administration issued a new rule to address the reduction of single-use plastic used in packaging (Box 3). The National Aeronautics and Space Administration (NASA) is advancing internal waste prevention practices that protect natural resources and reduce pollution, waste toxicity, and costs, resulting in a waste diversion rate exceeding approximately 75% for the past five years. Consistent with the E.O.



14057 Implementing Instructions, the Department of Justice issued an Acquisition Policy Notice that provides that, "Bureaus should consider reducing and phasing out procurement of single-use plastic products, to the maximum extent practicable." These efforts will not only have a positive impact within federal facilities, but also reduce the potential for mismanaged waste and ultimately environmental pollution that affects communities nationwide. Because of its purchasing power, by reducing the demand of plastic products through procurement changes, the Federal Government has the potential to significantly impact the supply of these products.

## Box 2. Executive Order 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

In December 2021, President Biden issued <u>E.O. 14057</u> on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, which demonstrates how the United States will leverage its scale and procurement power to lead by example. The E.O. commits federal agencies to "reduce emissions, promote environmental stewardship, support resilient supply chains, drive innovation, and incentivize markets for sustainable products and services by prioritizing products that can be reused, refurbished, or recycled; maximizing environmental benefits and cost savings." The E.O. requires agencies to incorporate environmental justice considerations when planning programs and operations. Subsequent <u>E.O. 14057 instructions issued by CEQ</u> direct agencies to reduce and phase out procurement of single-use plastic products, to the maximum extent practicable, in order to minimize waste, advance pollution prevention and environmental justice, and promote a transition to circular economy approaches. The E.O. sets waste reduction goals for agencies and requires regular reporting on sustainability activities and progress toward those goals. The President's foundational E.O. sets the tone for prioritizing sustainability and waste reduction within Federal Government operations.



## Box 3. Department of the Interior: Secretary's Order 3407 and GSA's Acquisition Regulation: Reduction of Single-Use Plastic Packaging Rule

Secretary of the Interior Deb Haaland issued Secretary's Order 3407 to reduce the procurement, sale, and distribution of single-use plastic products and packaging Department-wide, with a goal of phasing out single-use plastic products on Interior Department-managed lands by 2032. As part of this Order, the National Park Service launched a Request for Proposals (RFP) in 2024 focused on source reduction and circularity in National Parks. The RFP calls for projects and enterprises that embody the Service's commitment to reducing single-use plastic. With these initiatives, the Department of the Interior is taking critical steps to collectively reduce plastic pollution, increase circularity, spur economic opportunities, and meaningfully engage local communities.

The General Services Administration (GSA) issued a <u>final rule</u> to address single-use plastic packaging on the Federal Supply Schedule (FSS). GSA offers tens or hundreds of thousands of products via the FSS, with the one commonality being single-use plastic packaging. To reduce single-use plastic waste, GSA pursued a new clause and provision that is now included in its FSS contracts to encourage and highlight the availability of single-use plastic-free packaging.

Federal agencies are also taking steps to target specific items or pollution pathways, such as eliminating the procurement of certain products and introducing more environmentally friendly systems, like water refill stations as a substitute for single-use plastic bottles. Examples include the Department of Defense Commissary Agency's efforts to eliminate its use of single-use plastic bags across military bases worldwide and the Department of the Navy's Plastic Reduction in Marine Environment/Navy Waste Reduction Afloat Protects the Sea (PRIME/WRAPS) program, which focuses on the reduction of plastic waste generated aboard surface ships and submarines. Federal tools, like EPA's Recommendations of Specifications, Standards, and Ecolabels for Federal Purchasing program, help agencies to identify and procure environmentally preferable products and services. Agencies are also required to purchase items from EPA's Recommendations "to the maximum extent practicable." Furthermore, the Administration is investing in reuse infrastructure to decrease reliance on single-use plastic. For example, EPA's Trash Free Waters program has established a partnership to pilot reusable food ware systems in four United States cities. The goal of this initiative is to demonstrate that reuse systems can be accessible, safe, and equitable for cities. 43 While there is still room for growth, these efforts show how the Federal Government is addressing plastic pollution in its operations.

## **Improving Environmentally Sound Waste Management**

President Biden's <u>Investing in America agenda</u> is making historic investments in strengthening infrastructure, tackling climate change, and creating a more equitable future. This includes EPA's <u>Environmental Justice Grants and Technical Assistance Program</u>, which offers a variety of opportunities for projects that focus on plastic pollution reduction, primarily for community-based organizations working on environmental justice challenges, but also for state, territorial, Tribal, and local governments, and academic institutions working in partnership with those entities. Additionally, EPA is implementing solid waste grant programs, including the <u>Solid</u>



Waste Infrastructure for Recycling and the Recycling Education and Outreach grants, which include funding for communities already overburdened by pollution (Box 4). This is one example among many created and funded by the Biden-Harris Administration to take action to improve environmentally sound waste management. These programs also advance President Biden's Justice40 Initiative, which set a goal that 40% of the overall benefits of certain federal climate, clean energy, and other investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution.

### **Box 4. Environmental Protection Agency: Investing in Infrastructure**

EPA is investing \$275 million in Solid Waste Infrastructure for Recycling grants as part of President Biden's Investing in America agenda. Program awards will be distributed between states, territories, communities, Tribes, and intertribal consortia, to implement the EPA's National Recycling Strategy and National Strategy to Prevent Plastic Pollution (once finalized). In 2023, EPA made 140 grant selections for projects ranging from recycling, composting, and reuse infrastructure improvements to technical support for local waste management staff. This grant program marks the first time that funding of this scale has been available specifically for the purpose of improving solid waste infrastructure. Local municipalities and their budgets are often overburdened with solid waste management costs, and providing additional support and flexibility is critical for communities to advance solutions that are tailored to their local context. Funded projects included expanding waste collection locations and receptacles, implementing local recycling education and outreach campaigns, using new data systems to track municipal solid waste, providing technical training and certifications to waste management staff, conducting analyses for reuse and deposit-return initiatives, and many others.

In addition to deploying historic funding from the President's <u>Investing in America agenda</u> to combat plastic pollution, agencies are committed to addressing plastic pollution through cross-sector, interdisciplinary, innovative partnerships, both at home and abroad. In 2023, EPA engaged the public with a draft <u>National Strategy to Prevent Plastic Pollution</u>, which identifies actions the agency and domestic stakeholders can take to eliminate the release of plastic waste into the environment by 2040. <sup>44</sup> EPA's <u>National Recycling Strategy</u> identifies strategic objectives and stakeholder-led actions to create stronger, more resilient, and cost-effective domestic recycling systems. These efforts have been supported through grant funding to further advance the Administration's goals to update outdated waste management infrastructure.

Agencies are also making progress internationally. In 2023, the State Department (State) launched the End Plastic Pollution International Collaborative (EPPIC) with \$15 million in initial United States funding. EPPIC is a public-private partnership built to catalyze governments, non-governmental organizations, and businesses to support innovative solutions to the plastic pollution crisis. State also provided \$1.5 million to the United Nations Environment Programme and the Basel Convention's Plastic Waste Partnership to further advance plastic pollution efforts under those programs. The International Trade Administration (ITA) at the Department of Commerce promotes trade in recycled material as part of circular economies in the United States and abroad, including via a public-private partnership with the Recycled Materials Association (formerly known as the Institute of Scrap Recycling Industries). Additionally, ITA promotes United States exports of environmental technologies through its Environmental Technology



Trade Advisory Committee and research and analysis products such as its Environmental Technologies Top Export Market Rankings, which include waste management and recycling solutions that assist international partners in managing their plastic waste.

### **Informing and Conducting Plastic Pollution Capture and Removal**

Several federal agencies are leading efforts to clean up existing plastic pollution and prevent additional plastic pollution from entering the environment, including the ocean. The National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program is the United States federal lead for addressing the impacts of marine debris. 45 NOAA works with organizations around the United States and globally to prevent, remove, and study marine debris (Box 5). Through the Marine Debris Program, NOAA established the Marine Debris Monitoring and Assessment Project (MDMAP), which engages NOAA partners and volunteers around the world in surveying and recording the amount and types of marine debris on shorelines using a rigorous methodology. At EPA, the Trash Free Waters program provides technical and financial assistance to numerous place-based trash capture projects around the country. Furthermore, the United States Agency for International Development's (USAID) Save Our Seas Initiative, which includes its global Clean Cities, Blue Ocean program, partnerships with key private sector stakeholders such as Circulate Capital, and 12 bilateral and regional programs led by USAID Missions, is reducing, recovering, and diverting thousands of metric tons of plastic through locally-led grants and direct technical assistance to dozens of cities. The Biden-Harris Administration is committed to a cleaner, safer future, through actions here at home, and in close coordination with our global neighbors.

# **Box 5. National Oceanic and Atmospheric Administration: Marine Debris Clean-up**

As part of the President's Investing in America agenda, in 2023, the NOAA Marine Debris Program provided over \$70 million in federal funding for 15 transformational multi-year projects. The Program's funding competition focused on two priorities: removing large marine debris and using proven interception technologies to capture marine debris throughout the coastal United States, Great Lakes, territories, and Freely Associated States. Concurrently, NOAA Sea Grant announced its first 29 projects, representing \$27 million in federal funding, that support the creation of coalitions and innovative research that will address the prevention and removal of marine debris over time. The NOAA Marine Debris Program and NOAA Sea Grant will continue to administer a combined \$200 million in funds through fiscal year 2026, demonstrating a historic investment in the prevention and removal of debris from marine and Great Lakes environments across the nation.

## **Looking Ahead**

The Biden-Harris Administration has laid the foundation for the first whole-of-government effort to combat plastic pollution. This document outlines areas for additional focus and progress in the years ahead and highlights how strategies for combatting plastic pollution can help fulfill other key Administration priorities, such as strengthening energy security and affordability, advancing



environmental justice, protecting public health, conserving the nation's lands and waters, improving sustainability, and tackling the climate crisis.

The actions highlighted in this document align with existing executive actions and federal efforts, including <u>E.O. 14096</u> on Revitalizing Our Nation's Commitment to Environmental Justice for All, <u>E.O. 14008</u> on Tackling the Climate Crisis at Home and Abroad, the <u>America the Beautiful Initiative</u>, and President Biden's <u>Justice40 Initiative</u>. The document also aligns with international efforts, including United Nations Environment Assembly <u>Resolution 5/14</u> ("End plastic pollution: towards an internationally legally binding instrument") and the <u>United Nations Sustainable Development Goal 12</u>.



# **Principles and Priorities: Charting a Path for Solutions**

Just 70 years ago, plastic was a new material that increased the manufacturing of synthetic products at a time of significant commercial transition. Today, those products, created from plastic materials that were designed to be long lasting, are increasingly used to produce disposable, single-use items that most commonly end up in landfills or in the environment, including the ocean. 46 Exponential growth in plastic production and consumption has outpaced society's ability to manage the resulting waste. As a result, plastic pollution is becoming one of the most pressing environmental, occupational, and public health challenges faced today. Groups across sectors are demanding reduction in the consumption of single-use plastic and are advocating for more sustainable options. Research has clearly shown that downstream efforts, such as increasing waste collection and recycling, are insufficient to tackle the plastic pollution crisis. 47 Instead, a holistic approach across the entire lifecycle of plastic is required to reduce and ultimately prevent harm to the environment, economy, and human health. Similar comprehensive concepts have been used by the Federal Government to address other potentially harmful materials, such as the Sustainable Chemistry Strategic Plan, which also emphasizes the importance of collaboration and a strong foundation for future research and action. 48

<u>Key Focus Areas</u>: This document outlines opportunities for federal action during the following plastic lifecycle stages:



Figure 1: Opportunities for action at points along the plastic lifecycle, adapted from the National Academies of Sciences, Engineering, and Medicine (2022)<sup>49</sup>

- 1. Assessing and Reducing Pollution from Plastic Production: "Upstream" measures, such as more effective regulations on the methods, feedstocks, and chemicals used in plastic production, can lessen associated pollution from key sources at the beginning of the plastic lifecycle. <sup>50</sup> Pollution associated with plastic production includes not only greenhouse gases, but a range of hazardous air pollutants and volatile organic compounds, some of which are known carcinogens. <sup>51</sup> Pairing these measures with improved data collection is necessary to understand the full extent of the environmental and human health risks of plastic production. Example actions for the Federal Government include regulatory updates and rulemaking, health and environmental risk evaluations across the plastic lifecycle, and data collection.
- 2. **Innovating Materials and Product Design:** The alignment of measurements and standards, transparency across the supply chain, and opportunities for innovation in materials and services can help ensure that products are compatible with waste management systems and have minimal impacts on human health and the environment. Example actions include participating in the development of standards to promote

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- recyclability and reuse, innovation in materials management,<sup>52</sup> and additional research and development. Efforts to address the materials and product design stage of the plastic lifecycle have the potential to increase adoption of reusable products and improve the plastic recycling rate in the United States, which, as of 2018, was only nine percent.<sup>53</sup>
- 3. **Decreasing Plastic Waste Generation:** The United States consumes more plastic and generates more plastic waste than any other country. In 2019, the United States consumed an estimated 18% of global plastic products and generated approximately 486 pounds of plastic waste per capita. A key step to decreasing the quantity of plastic waste generated is limiting the initial use of materials that are unnecessary, difficult to manage, or likely to end up as pollution in the environment. Changes in acquisition and consumption can reduce the demand for those products, including within Federal Government operations. Actions outlined in this section include reductions in the procurement of plastic and opportunities to increase reuse within the Federal Government.
- 4. Improving Environmentally Sound Waste Management: As of 2018, the United States produced 35.7 million tons of plastic, and sent 27 million tons of plastic to landfill.<sup>57</sup> To ensure plastic waste is properly handled, various actions are aimed at improving environmentally-sound and worker-safe waste management practices and the associated infrastructure needs. These include efforts to optimize the collection of plastic, enhance plastic recycling, and other measures to prevent plastic waste from entering the environment. Improved waste management will both offset the amount of plastic waste sent to landfills and reduce the amount of waste entering the environment as pollution.
- 5. Informing and Conducting Capture and Removal of Plastic Pollution: In 2016 alone, it is estimated that as much as 23 million metric tons of land-based plastic waste from around the world entered aquatic ecosystems. <sup>58</sup> Actions in this section aim to improve the capture of plastic, both before it enters the waste management system, and to address and prevent its escape during the waste management process. In order to inform and fully accomplish these actions and measure the impact of efforts over time, it will be valuable to collect targeted additional data on the scale and characterization of plastic in the environment, including indoor environments. While more data are needed to solve this problem, currently available data demonstrate the importance of urgent and meaningful action.

No one solution can end plastic pollution, and no single sector can operate in a vacuum. Comprehensively addressing this complex issue requires actions at key stages of the plastic lifecycle, including fossil fuel extraction. The Biden-Harris Administration will continue to advance policies and programs across the entire plastic lifecycle, including those outlined within this document and outside of it.

**Key Principles:** The IPC highlights the following principles as particularly important to apply in federal agencies' work to reduce plastic pollution:

• Building Meaningful Partnerships to Support Solutions Across the Plastic Lifecycle: To advance a comprehensive and effective national effort for combatting plastic pollution, federal, state, Tribal, and local governments will need to work together and individually to develop and advance strategies and solutions that reflect the needs, priorities, and perspectives of all communities and stakeholders. Implementation of the



actions in this document will be more effective and have a deeper positive impact with the inclusion of the input and efforts from a broad range of stakeholders and communities, including communities with environmental justice concerns. The Biden-Harris Administration is committed to meaningful involvement of the public to ensure consideration of the perspectives of all interested stakeholders and affected communities at all relevant stages, e.g., planning through implementation. In pursuit of the actions in this document and to advance the goal of meaningful involvement, federal agencies should also seek state, local, and Tribal partnerships as well as partnerships within the United States territories, that can help identify, scale, and measure the effectiveness of solutions.

- Advancing Environmental Justice as Part of Addressing the Plastic Pollution
   Crisis: Safe and affordable alternatives to plastic are not always accessible. At the same
   time, many communities are overburdened by the pollution created from plastic
   production and disposal. The Biden-Harris Administration recognizes that plastic
   pollution is a serious environmental justice concern and is committed to advancing the
   goal of environmental justice as part of implementing plastic pollution actions outlined in
   this document.
- Respecting the Sovereignty of Tribal Nations and incorporating Indigenous
  Knowledge in Decision-Making and Research on Plastic Pollution: The Biden-Harris
  Administration recognizes that Tribal Nations and other Indigenous Peoples are on the
  front lines of the plastic pollution crisis. The Administration is committed to honoring
  federal trust and treaty obligations, engaging in government-to-government consultation,
  and incorporating Indigenous Knowledge to the extent that Tribal Nations and other
  Indigenous Peoples choose to share such knowledge. Agencies should seek opportunities
  to include Indigenous Knowledge as an important contribution to the scientific, technical,
  social, and economic advancements that are required to combat plastic pollution,
  following the principles outlined in the Memorandum on Uniform Standards for Tribal
  Consultation and Guidance for Federal Departments and Agencies on Indigenous
  Knowledge.
- Using the Best Available Science on Plastic Pollution: The actions in this document are supported by the best available scientific evidence and are expected to reduce plastic pollution and associated environmental, occupational, and public health risks. Scientific data show the need to take action on solutions now, and more and improved data collection will be valuable to improve understanding of existing and emerging plastic pollution challenges. The document calls for research and development to close critical information gaps, enhance decision-making, and guide and measure effectiveness. As new data is collected and released, agencies will continue to update and adjust their actions as needed based on the most up-to-date science.
- Strengthening Federal Interagency Coordination on Plastic Pollution: Multiple categories of federal activities can affect plastic pollution, including grantmaking, procurement, and rulemaking. Agencies will continue to coordinate and align their work through the IPC, as well as implement the Administration's policies to spur growth of domestic industry and good-paying, union jobs, address the climate crisis, and deliver equity and environmental justice.



# Federal Focus Areas and Opportunities for Action to Reduce Plastic Pollution

# **Section 1: Assessing and Reducing Pollution from Plastic Production**

Between 1950 and 2019, global annual plastic production grew from 2 million tons per year to 460 million tons per year, a nearly 230-fold increase. In the last two decades alone, global annual production of plastic more than doubled. By 2050, plastic production is expected to increase by four-fold. Not only will plastic production create more associated waste, but it will also likely increase greenhouse gas emissions. Plastic production is an energy intensive process that is heavily reliant on fossil fuels. More than 75% of the greenhouse gases generated by plastic are emitted in the production stage of the lifecycle before plastic compounds are assembled. By 2060, greenhouse gas emissions from plastic production, if left unchecked, are projected to more than double. The Administration is exploring ways to change the course of these trends (i.e., see Section 3) while also ensuring that it does all it can to address the adverse impacts to human health and the environment plastic production has been causing.

Building on ongoing action to assess and reduce pollution from plastic production, this section highlights areas of recommended focus as federal agencies work to further address pollution associated with the upstream production of plastic, beginning with feedstocks that are converted into the building blocks of plastic products, such as pre-production plastic pellets. Enhanced upstream measures, such as more effective regulations on the feedstocks and chemicals used in production, can lessen the total burden of pollution to manage across the plastic lifecycle, including both upstream and downstream emissions and releases. Immediate action is needed in parallel with the collection of additional data on the environmental and human health risks of plastics manufacturing, and other parts of the plastic lifecycle.

The Biden-Harris Administration aims to evaluate and address pollution resulting from plastic production, as appropriate, in the following ways. Although example IPC participants are listed, this list should not be considered comprehensive as other agencies are encouraged to consider potential authorities and opportunities they could use to coordinate and contribute to these goals, as appropriate.

		Opportunities for Action	Key IPC Participants
		Federal Programs	
1	I.1	Explore updates, such as to rules, guidance, labeling, or other policies, under the Clean Air Act, 63 Clean Water Act, 64 Resource Conservation and Recovery Act, 65 Safe Drinking Water Act, 66 Toxic Substances Control Act, 67 Consumer Product Safety Improvement Act, 68 Federal Food, Drug, and Cosmetic Act, 69 Agriculture Improvement Act, 70 Occupational Safety and Health Act, 71 Federal	CPSC, DOE, DOL/OSHA, EPA, HHS/CDC/ATSDR, HHS/CDC/NCEH, HHS/FDA, USDA



	Hazardous Substances Act, <sup>72</sup> Labeling of Hazardous Art Materials Act, <sup>73</sup> and other statutes, as appropriate, which may affect pollution related to the production or use of plastic, polymers, precursors, and related chemicals.	
1.2	Explore the full consideration of plastic pollution and related effects as part of regulatory design and analysis, as well as in environmental review processes, such as consideration of the effects of agency activities or decisions on the use or production of plastic or plastic pollution analyzed under the National Environmental Policy Act (NEPA). <sup>74</sup>	All
1.3	Prioritize and evaluate research on primary plastic polymers, precursors, and associated chemicals of concern to assist relevant agencies with mitigating risks to public health or the environment.	DOC/NIST, DOE, EPA, HHS/FDA, HHS/NIH, NSF
1.4	Collect and update data on volumes of plastic polymers, precursors, and feedstocks that the United States manufactures, recycles, imports, and exports as well as the downstream primary and secondary uses of plastic polymers and resins, in packaging and other sectors. <sup>75</sup>	CBP, EPA, DOC/Census, DOC/ITA
1.5	Measure plastic pollution and its public health and environmental impacts in affected communities, including communities with environmental justice concerns, and monitor pollution reduction and removal efforts.	EPA, HHS/NIH
1.6	Encourage industry-led, state-authorized, and voluntary actions to reduce harmful air, land, and water emissions from plastic production, including chemical additives.	DOE, DOT, EPA, HHS, NSF
1.7	Research ways to prevent the discharge of plastic and plastic associated chemicals from entities that transport and package plastic materials.	DOT, EPA, NSF
1.8	Consider ways to leverage federal research and funding to conduct or support epidemiological studies on human health impacts of exposure across the plastic lifecycle, including micro- and nanoplastic and associated additives, to close critical knowledge gaps on health hazards and help identify potential solutions.	EPA, HHS/CDC/NIOSH, HHS/FDA, HHS/NIH, OSTP/NNCO
1.9	Establish a coordinated federal science interagency council or committee that can facilitate the sharing of current information and leading practices on available science, data and research relevant to environmental, health, environmental justice, and equity implications of plastic pollution.	CPO, CEQ, OSTP

Example actions described in this section could help protect workers and communities from chemicals of concern, reduce plastic-related emissions, and ultimately prevent additional plastic pollution from entering the environment. Through effective and appropriate updates to government operations, policies, research, and data collection, and a focus on protecting human and environmental health, the United States can mitigate the adverse and growing impacts of plastic production on people and the environment.



# **Section 2: Innovating Materials and Product Design**

By the time a consumer first interacts with a product, the material and design have been well established. In order to meet cost and performance needs and global supply chain demands, plastic products and packaging have become increasingly complex and include a large variety of polymers and additives, some of which could pose risks to human health or the environment. This creates challenges for sustainable materials management as mixed materials may contaminate recycling streams and cause costly damage to infrastructure. Many plastic products, including single-use plastic products, cannot be readily recycled in the United States due in part to diversity of materials, lack of access to curbside recycling, and the need for relevant infrastructure. The responsibility for managing these complicated waste streams generally falls to the consumer and state, Tribal, territorial, and local governments when end-of-life products are sent to landfills, incinerated, recycled, or littered.

This section looks at the material design and manufacturing stage of the plastic lifecycle. The following recommended actions promote long-term economic investment and encourage federal agencies to take materials management and human and environmental health considerations into account when activities affect design and manufacturing innovation. Efforts on material and product design innovation should aim to align, as appropriate, with principles of green engineering <sup>77</sup> and sustainable chemistry, <sup>78</sup> and also address emerging technologies, including 3D printing and wearable items. International standards, such as the standards from the International Organization for Standardization (ISO) and the American Society for Testing and Materials International (ASTM) on circular economy, polymers, and sustainability, should be considered in implementing these actions. As work continues to reduce the amount of traditional plastic manufactured, there is a need to be mindful of challenges associated with alternative materials and plastic substitutions that have been or could be developed to take their place. The impact across the entire lifecycle of substitutions and alternative materials, from production to recycling, reuse, or responsible disposal, must be considered.

Federal agencies are exploring innovative measures to improve plastic product performance and use. Complementing ongoing efforts, the Biden-Harris Administration supports efforts in the following areas to advance innovation in the processes leading up to, implementing, and after material and product design.



	Opportunities for Action	Key IPC Participants	
	Federal Programs		
2.1	Support and promote the development of end-of-life material and performance specifications; assess the commercial-scale recyclability of these materials, as applicable; share results.	DOC/NIST, DOE, EPA, NSF	
2.2	Explore and determine appropriate minimum post-consumer recycled and/or bio-based content requirements for plastic products and packaging; consider ways to decrease the quantity of new plastic required (while maintaining food packaging safety where appropriate) and prompt timelines to implement potential requirements.	DOC/NIST, DOE, EPA, USDA	
2.3	Provide technical assistance to states, Tribes, local governments, and regions in developing policies on material design and disposal to promote environmentally preferable and circular options aligned with the goal of sustainable chemistry.	DOC/NIST, EPA, USDA	
2.4	Encourage alignment with, and acceptance of international standards (e.g., ISO, ASTM International) for performance or design criteria, labeling, and recycling specifications for plastic products, as appropriate, in the United States and abroad.	DOC/ITA, DOC/NIST, EPA, USDA, USTR	
2.5	Promote the full lifecycle analysis of potential alternatives to single-use and other plastic products, and their environmental, occupational, economic, climate, and health impacts.	CPSC, DOC/ITA, DOC/NIST, DOE, EPA, HHS/CDC/NIOSH, HHS/FDA, HHS/NIH, NSF, USDA	
2.6	Evaluate and publish information about the potential environmental or human health impacts of plastic additives and contaminants, including in recycled plastic.	CPSC, DOC/NIST, EPA, HHS/FDA, HHS/NIH, USDA	
2.7	Promote industry-wide innovation in design and materials management, such as through specifications, and economic incentives to maximize the value of and trade in recycled and recyclable materials. <sup>79</sup>	DOC/ITA, DOC/NIST, DOE, EPA, NSF, USDA, USTR	
2.8	Support research and development, testing, and standards development regarding the safety of reusing plastic waste and operating reuse infrastructure.	DOC/ITA, DOC/NIST, DOL, EPA, NSF	

These actions can strengthen material circularity that will better preserve natural resources, change consumption patterns, and reduce the environmental and public health impacts of the creation of new plastic products and alternatives. Encouraging the use of performance standards has the potential to ease the burden on waste management systems and increase the quality and quantity of recycled content in the marketplace.



# **Section 3: Decreasing Plastic Waste Generation**

Currently, over 400 million tons of plastic is estimated to be produced globally each year, much of which is not properly managed at the end of its life. 80 While the United States is home to less than five percent of the world's population, it is estimated to be among the top contributors of plastic waste by country worldwide. 81 In 2018, nine percent of plastic collected through municipal solid waste was recycled in the United States. Around 12% of the United States' municipal solid waste stream is plastic and the national per capita waste generation rate is two to eight times higher than that of other countries. 82

Single-use plastic represents around 40% of the global plastic market and comprises much of the total amount of plastic waste generated. 83 These single-use consumer products, such as food and beverage packaging and utensils, are among the top littered, identifiable items found in coastline and other environmental clean-ups worldwide. 84 As the largest employer and purchaser of goods and services in the United States, the Federal Government can lead by example in reducing plastic waste generation. 85 President Biden's E.O. 14057 and the Department of the Interior's Secretary's Order 3407, further described in the Progress: Advancing Efforts to Combat Plastic Pollution section above, are notable examples of such efforts to reduce consumption and disposal of plastic.

Building on ongoing efforts, the Biden-Harris Administration encourages additional efforts to reduce plastic consumption and waste generation in Federal Government operations, including events, and programs.

	Opportunities for Action	Key IPC Participants	
	Federal Operations		
3.1	Identify available data and data gaps for assessing scope and scale of plastic purchased and used across Federal Government operations.	CEQ, EPA, OMB/OFPP	
3.2	Determine product and service categories where alternatives to plastic are currently available to meet federal procurement needs.	CEQ, EPA	
3.3	Identify best practices and opportunities to expand reuse, refill, and repair of materials in order to reduce plastic waste generation in Federal Government operations.	EPA, GSA	
3.4	Develop priority strategies to replace, reduce, and phase out unnecessary use and purchase of plastic products by the Federal Government, including single-use plastic.	CEQ, GSA	
3.5	Consider updates to procurement policies for government-wide implementation of priority strategies to reduce purchase and use of unnecessary plastic products.	CEQ, GSA, OMB/OFPP	
	Federal Programs		
3.6	Lead a Federal Government-wide public awareness campaign to educate the American public about plastic pollution, proper management of plastic and alternative materials, as well as health implications, and actions they can take to reduce their use of plastic. This could potentially include information for targeted audiences that	All	



	agencies work with or serve, such as healthcare providers and/or educators, and could draw on federal research on plastic pollution.	
3.7	Encourage federal agencies that provide Small Business Innovation (SBIR) Grants to incorporate a topic area related to the reduction of single-use plastic and/or minimization of plastic waste within their annual proposal solicitations period.	DOC, DOD, DOE, DOT, ED, EPA, NASA, NSF, USDA
3.8	Develop more detailed industry classifications for recycling supply chains in the industrial census. More detailed economic reporting can allow more informed decisions when allocating financial resources while measuring the growth of the recycling industry.	EPA, DOC, OMB
3.9	Support innovative measures, research, and programs to expand reuse, refill, and repair of materials in order to reduce plastic waste generation.	DOE, EPA, DOC, NSF, USDA

Ensuring that resources are used more efficiently could ultimately reduce the demand for new plastic materials. Reuse and refill models can be implemented across the Federal Government for a variety of products, such as printer cartridges, cleaning supplies, and consumer goods like beverages. By making reuse and refill more accessible, and reducing the amount of plastic consumed through acquisition, the Federal Government can reduce the demand for new plastic and ultimately divert plastic from landfills and the environment.



# **Section 4: Improving Environmentally Sound Waste Management**

Collecting, transporting, and managing municipal solid waste is an expensive endeavor that has increasingly strained state, territory, Tribal, and local budgets. <sup>87</sup> Advancements in product design have not been reflected in consistent labeling, community guidance, or waste management infrastructure. Ensuring the effective management of the products and materials currently available is critical to reducing pollution. However, downstream efforts alone will not adequately address the growing plastic pollution crisis. Rather, holistically improving waste management, in concert with outcome-based, advanced product design, as noted in the Innovating Materials and Product Design section, is an essential part of addressing this escalating problem. This section addresses the need to improve solid waste management infrastructure, including optimizing the collection of plastic, promoting safe handling of plastic waste to protect workers, enhancing plastic recycling, and avoiding plastic entry into the environment. EPA is leading the charge on these improved waste management efforts, mostly notably in the National Recycling Strategy and the draft National Strategy to Prevent Plastic Pollution.

Additional actions the Federal Government should evaluate and undertake, as appropriate, to improve environmentally sound waste management include:

	Opportunities for Action	Key IPC Participants	
	Federal Operations		
4.1	Work with vendors and waste management companies to improve and standardize data reported on plastic waste generated from agency operations.	All	
4.2	Take action to inform employees and ensure appropriate infrastructure that promotes safe handling and proper plastic recycling and disposal at federal facilities and events.	All	
	Federal Programs		
4.3	Develop recommendations for a national extended producer responsibility <sup>88</sup> initiative that allows states, Tribes, local governments, and territories to develop approaches best for them, provides a vision for a harmonized national system and goals for plastic waste management, and aims to level the playing field for producers across all states and territories; support the initiative's implementation.	EPA	
4.4	Support the development and deployment of, and investment in, technologies and infrastructure for the collection, recycling, and disposal of plastic waste, as well as source separation and industrial composting.	DOC/ITA, DOC/NIST, DOE, EPA, USAID	
4.5	Provide environmental and health analysis of end-of-life pathways for plastic products, such as recycling, landfilling, incineration, and trade with developing and other countries.	DOC/ITA, DOE, EPA, HHS	



4.6	Develop environmental, occupational, and public health monitoring near waste management operations and sites, including on Tribal lands.	DOL, EPA, HHS/ CDC/NIOSH
4.7	Identify and measure pathways by which plastic pollution enters and persists in the environment.	DOC/NIST, DOC/NOAA, EPA, USAID
4.8	Improve the effectiveness of wastewater treatment plants to remove microplastic and microfibers and promote innovative technologies to reduce leakage into the environment.	EPA
4.9	Examine ways to help prevent United States exports of plastic waste and scrap from becoming pollution and to coordinate internationally to address this problem.	CBP, DOC/ITA, DOJ, EPA, State
4.10	Explore potential ways to illustrate support for United States ratification of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal through normal and recognized executive-legislative relationships, e.g., identify ways this would protect United States interests by better controlling the transboundary movement of plastic waste and scrap.	EPA, State, USTR
4.11	Promote responsible trade in plastic and technologies for the collection, recycling, and disposal of plastic waste.	DOC/ITA, DOC/NIST, EPA, USTR
4.12	Support programs and activities that reduce the amount of plastic fishing gear lost, abandoned, or discarded in the ocean.	DOC/NOAA, USAID
4.13	Explore affordable domestic disposal (e.g., port reception facilities) and recycling options for recovered abandoned, lost, or otherwise discarded fishing and aquaculture gear and end-of-life fishing and aquaculture gear at fishing ports in the United States and its territories.	DOC/NOAA

Through these actions, the Federal Government can reform its management of plastic waste and use of plastic products for which scalable and feasible alternatives do not yet exist. For example, by increasing the availability of collection sites for specific materials, the potential for contamination in waste streams is decreased, reducing the risk of plastic entering the environment.



# Section 5: Informing and Conducting Plastic Pollution Capture and Removal

Plastic pollution may travel through waterways, cross geographic boundaries, and ultimately accumulate in communities and terrestrial, aquatic, and marine ecosystems. Over time, it breaks up into smaller and smaller particles, known as microplastic, making its removal increasingly challenging in terms of both cost and responsibility. This plastic pollution can damage fragile habitats and pose threats of entanglement and ingestion to terrestrial, aquatic, and marine species. <sup>89</sup> Plastic pollution and marine debris can collect in the ocean's gyres, or rotating currents. Based on recent trajectories, without key mitigation actions, the problem will only worsen and undermine efforts taken by the Biden-Harris Administration to support a resilient ocean and sustainable ocean economy that is available to all. <sup>90,91,92,93</sup>

Understanding the types and quantities of waste that end up in the environment, and how concentrations change over time, will help inform the upstream actions listed in Sections 1-4 and identify the most effective sites for capture and removal. This section addresses data gaps and encourages continued agency efforts to remove existing pollution and capture plastic waste before it enters the environment.

Building on ongoing efforts, the Biden-Harris Administration encourages the following actions:

	Opportunities for Action	Key IPC Participants	
	Federal Programs		
5.1	Evaluate opportunities for using more precise modeling approaches to establish a baseline for the amounts and types of solid waste materials that escape into United States waterways and the ocean.	EPA, NASA	
5.2	Continue monitoring the amount and types of marine debris on shorelines using a rigorous methodology to inform waste reduction priorities.	DOC/NOAA, EPA, NASA, USAID	
5.3	Develop standardized methods for the collection, extraction, quantification, and physical and chemical characterization of micro/nanoplastics.	DOC/NIST, DOT, EPA, HHS/CDC/ATSDR, HHS/CDC/NCEH	
5.4	Support plastic pollution removal activities in coastal communities, including communities with environmental justice concerns that are overburdened by plastic pollution.	DOC/NOAA, HHS/CDC/ATSDR, HHS/CDC/NCEH, USAID	
5.5	Deploy trash interception devices and expand coordinated efforts to capture, clean-up, and responsibly dispose of leaked plastic, including from the ocean and waterways.	DOC/NOAA, EPA, USAID	
5.6	Support the removal and proper disposal of plastic marine debris including derelict fishing gear and other large debris that is generally unable to be collected by hand.	DOC/NOAA, EPA	



5.7	Support efforts, such as regional coordination, exploring alternatives to plastic, and outreach and education, to reduce the impacts of marine debris on coastal environments, navigation, human health, safety, and the economy.	DOC/NOAA, HHS/CDC/ATSDR, HHS/CDC/NCEH
5.8	Share best practices, policies, guidance, lessons learned, and technologies for trash interception.	DOC/NOAA, DOI, EPA, HHS, USAID

By determining the baseline amount and types of macroplastic, <sup>94</sup> microplastic, and nanoplastic <sup>95</sup> that escape into waterways and the ocean, the United States can identify pollution sources and pathways and determine the most effective upstream efforts in the future. In the meantime, removal efforts remain critical in preventing further distribution and damage caused by plastic pollution in the environment.



# **Conclusion**

Since day one, the Biden-Harris Administration has made it clear that protecting human health and the environment is a top priority, and addressing the impacts of plastic pollution is essential to achieve this goal. While plastic pollution is a global problem and the associated challenges are great, they also present opportunities to pursue ambitious, data-driven, innovative actions. The Biden-Harris Administration is committed to implementing policies and pursuing initiatives that address the impacts of plastic pollution and ensuring that communities nationwide experience the benefits of these efforts.

By building on existing efforts and identifying new opportunities for action, this document establishes the first United States Federal Government-wide strategy to address plastic pollution for society, the environment, and the economy. It exemplifies the collaboration required to make measurable progress in areas where the Federal Government has a significant ability to effect and contribute to positive change across the nation. Federal agencies are dedicated to exploring and carrying out these actions in appropriate and effective ways, and sharing their knowledge of lessons learned over time. Federal agencies will seek public, state, territorial, and Tribal input, engagement, expertise, and perspectives in the continued implementation of strategies to address plastic pollution.

As outlined in this document, the United States Federal Government is advancing important efforts to combat plastic pollution, and recognizes that more needs to be done. To meet the scope and gravity of the plastic pollution crisis, bold, ambitious, and holistic action must occur at all levels and across all sectors. With growing interest from the public and private sectors, anticipated progress on a worldwide scale, and significant support across a range of federal agencies, action must be taken now to combat plastic pollution to secure an equitable, safe, and healthy future for generations to come.



### Additional Information

All potential federal activities included in this document are subject to budgetary constraints, interagency processes, stakeholder input, and other approvals, including the weighing of priorities and available resources by the Administration in formulating its annual budget, and by Congress in legislating appropriations. This document is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. Although all IPC agencies have contributed to this document in their particular areas of focus, this document in full should not be assumed to reflect the view of each individual agency. This document does not impose legally binding requirements. This is a planning document that should be interpreted and applied consistent with applicable law; to the extent any inconsistency may be implied or found to exist, applicable statutes, regulations, and other legal requirements govern. Mention of case studies; public, private, or nonprofit entities; trade names; or commercial products or services in this document does not and should not be construed to constitute an endorsement or recommendation of any such product or service for use in any manner.

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# **Appendix A: Existing United States Federal Activities on Plastic**

Below is a non-exhaustive list of ongoing federal agency activities to address plastic pollution. The lists include a snapshot of current plastic research, reports, and databases that the United States Federal Government contributes to or leads. Activities in federal departments and agencies are rapidly evolving in response to the call from a wide range of stakeholders across various sectors for more actions to address plastic pollution; therefore, this document should be treated as a point-in-time inventory of activities.

The White House Council on Environmental Quality and the White House Office of Domestic Climate Policy co-chair the Interagency Policy Committee on Plastic Pollution and a Circular Economy (IPC). Actions and progress by components of the Executive Office of the President on plastic pollution are listed below alongside the other participating IPC agencies.

### **Agency for International Development (USAID)**

### **Procurement & Sustainability**

- USAID is working to integrate changes in procurements in various USAID sectors:
  - Updating operational policy guidance on environmental compliance terms for use in solicitations and awards.
  - Providing guidance and training to Contracting Officers on the importance of considering environmentally-friendly solutions and sustainable acquisition methods.
  - Revising USAID's operational policy for its Worldwide Purchase Card Program
    to incorporate tools, such as GSA's <u>Green Procurement Compilation (GPC)</u>, to
    the purchase card process. The GPC includes sustainable products and services
    that minimize or avoid plastic.
  - Objective of USAID's Climate Strategy, which covers and includes several resources that focus on plastic pollution, including green meeting and event guides/checklists, technical guidance on plastic pollution and climate change, and guidance for avoiding and reducing plastic in humanitarian assistance (Joint Initiative).

#### Source Reduction

- Through its <u>Clean Cities</u>, <u>Blue Ocean program (2023 Annual Report)</u>, USAID has reduced, recovered, and diverted over 19,600 metric tons of plastic and other low-value waste from disposal through direct technical assistance to over 25 cities and nearly 40 locally-led grants. Examples include:
  - In <u>Vietnam</u>, USAID is supporting local organization, GreenJoy, to manufacture
    and market grass bags and straws to eliminate use of single-use plastic products,
    particularly in Phu Quoc's hospitality sector.



- o In the Maldives, USAID is supporting social and behavior change research through grantee Small Island Geographic Society that asks households to pilot single-use plastic alternatives, such as water filters, reusable bags, and cloth diapers. One metric ton (equivalent to 108,000 half-liter plastic bottles) of plastic were avoided through this activity.
- USAID's Bureau for Humanitarian Assistance is investigating through its partners and Supply Chain Management Division options for reducing plastic packaging in its food and non-food assistance, such as blankets and shelter kits. This also includes secondary and tertiary packaging, such as stretch wrap used for palletizing assistance. See more case studies at the Joint Initiative website.
- USAID, through the United States President's Malaria Initiative, is working with partner countries to eliminate individual plastic bags for insecticide-treated mosquito nets where regulation and storage conditions allow. With mass insecticide-treated net campaigns, 120 metric tons of individual plastic packaging are generated for every 2 million nets distributed.
- USAID started piloting an island-based circular economy model in the Philippines
  through grantee Pure Oceans, which is working with community residents and the local
  government to support plastic waste reduction enterprises like Soli Soli stores (refillable
  product stores). In the Maldives, grantee Soneva Namoona supported partnering islands
  to create Eco Centro waste-to-wealth centers that sort, recycle and reuse island waste.
- In 2022, USAID published <u>Stopping Ocean Plastic Pollution from Cities: A USAID Case Study of Parañaque City</u>, <u>Philippines.</u>

### Solid Waste Management

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- Programs comprising USAID's Save Our Seas Initiative have safely managed more than 575,000 metric tons of waste and recyclables. Of this, more than 99,000 metric tons of plastic—the equivalent of nearly 10.7 billion half-liter plastic bottles—were secured from leaking into the environment. This has been achieved through direct technical assistance to over 25 cities and over 50 locally-led grants. Examples include:
  - O In Peru, USAID partnered with the local government in Pisco to optimize routing and collection plans for all eight areas of the city, expanding waste services to an additional 19% of the population (nearly 12,800 residents) and reaching 100% waste collection coverage.
  - o In <u>Indonesia</u>, USAID supported a local grantee, Rebricks, to produce construction materials using plastic waste. USAID is also partnering with <u>Circulate</u>

    <u>Capital</u> and grantee Prevented Ocean Plastic Indonesia to expand recycling infrastructure through new aggregation and collection centers that optimize the volume and value of plastic waste in the cities of Semarang and Makassar.
  - USAID/Bureau of Humanitarian Assistance has supported the Joint Initiative for Sustainable Humanitarian Assistance Packaging Waste Management and the Global Logistics Cluster to identify and map solid waste management facilities near ongoing humanitarian operations.



• Launched in 2016, the <u>Municipal Waste Recycling Program</u> was USAID's first formal response to the urgent challenge of plastic pollution in developing countries.

### Post-leakage Capture & Clean-up

- USAID helped prevent waste from leaking into the environment through technical assistance. Examples include:
  - o In Sri Lanka, USAID partnered with MAS Foundation to reduce ocean plastic leakage through the installation of "canal strainers" that collect ocean-bound waste and capture it for return into the local circular economy.
  - o In the Dominican Republic, USAID provided technical support to the national government to clean up open dumpsites and prevent further environmental damage. The improvements cleaned up and prevented more than 435,000 metric tons of waste from leaking into the environment.

### Research & Development

- USAID's Bureau for Humanitarian Assistance (BHA) worked with the Massachusetts
  Institute of Technology Lincoln Laboratories from 2019-2023 to investigate and pilot
  solutions to track, manage, and reduce the environmental impact of humanitarian aid
  packaging waste through the Joint Initiative for Sustainable Humanitarian Assistance
  Packaging Waste Management.
  - In 2019, USAID/BHA scoped the packaging waste issue in humanitarian assistance by consulting partners about their challenges in the field and current efforts to manage the waste stream. The report helped inform the following Joint Initiative for Sustainable Humanitarian Assistance Packaging Waste Management —joining the efforts of 26 multilateral partners.
- USAID's Bureau for Global Health is developing a literature review of environmental and climate impacts from the pharmaceutical sector in resource limited countries.

#### Public-Private Collaboration

- USAID has partnered with more than 180 multi-national, national, and local public and private sector organizations and leveraged more than \$118 million from such partnerships to eliminate ocean plastic. Examples include:
  - o In Peru, USAID partnered with companies like Owens Illinois, Tetra Pak, and AJE Group to purchase recyclable materials that are being collected through program activities and return them directly to the circular economy.
  - O In the Philippines, USAID's Women in Waste's Economic Empowerment (WWEE) activity fostered cross-sector partnerships for impact and sustainability, including a private sector partnership with The Coca-Cola Foundation (Global and Philippines). With training, mentoring, and small grants for equipment, these women expanded their recycling enterprises, keeping plastic waste out of the environment.
  - O USAID and the United States Development Finance Corporation partnered to provide Circulate Capital with a partial loan guarantee to help de-risk up to \$35 million of investments in plastics recycling businesses in South and Southeast Asian countries. This guarantee has helped Circulate Capital go well beyond that



- target, raising over \$106 million in private sector funds from leading United States and global businesses.
- O USAID has partnered with other donors, including the Norwegian Agency for Development Cooperation (Norad) and Korea International Cooperation Agency through its Clean Cities, Blue Ocean (CCBO) program. Norad has been supporting CCBO through a NOK 30 million (about \$3.36 million USD) buy-in funding grants and technical assistance in Indonesia, the Philippines, and Sri Lanka.
- O Through USAID's Africa Trade and Investments Project (ATI), USAID has supported a number of new awards to build and expand plastic collection and recycling operations and support national and international partnerships to augment the plastic value chain client base, thereby boosting plastic value. ATI has also helped fund 12 aggregation hubs with baling machines at strategic locations across Kenya to increase the amount of plastic collected and recycled.
- In 2022, USAID's Green Cities Division brought together 41 diverse voices from leading private sector companies, development agencies, national and local governments, academia, and non-governmental organizations for a <u>virtual roundtable</u> to discuss the challenges of implementing Extended Producer Responsibility as a policy tool to reduce plastic pollution in lower- and middle-income countries.

### **International Efforts**

- USAID's daily operations include implementing hundreds of millions of dollars of development and humanitarian assistance. USAID is piloting several efforts to reduce disposable product use in its programming.
- USAID is adopting green packaging for its global health commodity supply chain program, eliminating the use of unnecessary plastic, and coordinating with other commodity donors such as UN Population Fund to enhance sustainable sourcing practices.
- Protection Agency (EPA), and National Oceanic and Atmospheric Administration (NOAA) for coordination and planning. For example, USAID partnered with EPA in the Dominican Republic on waste management training, and EPA funded recycling equipment and is supporting plastic recycling markets at the Samaná landfill, where USAID supported open dump remediation and is providing ongoing technical assistance to build local capacity. Since 2018, USAID has collaborated with the DoS on capacity-building for the Association of Southeast Asian Nations (ASEAN) and Asia Pacific Economic Cooperation (APEC) government representatives, including participating in the recent marine debris-focused second meeting of the ASEAN Seminar Series for the ASEAN Committee Washington and sharing experiences and tools from USAID ocean plastic programs in the region.
- The Agency-wide Save Our Seas Initiative, launched in June 2022, comprises CCBO, USAID's flagship global program working in ten countries; new bilateral and regional activities that have been awarded or are being developed by 14 USAID Missions; and partnerships with key stakeholders, including the private sector



(e.g., Circulate Capital), other donors (e.g., Norad), and partner countries (e.g., Indonesia).

- As part of the Save Our Seas Initiative, USAID has already launched major new bilateral programs in the Dominican Republic, Ecuador, India, Indonesia, Nigeria, Sri Lanka, the Maldives, Vietnam, and the Pacific Islands of Fiji, Micronesia, and Papua New Guinea. A solicitation has been issued in Peru. Several discrete activities are being funded in Kenya and East Africa, including the Mombasa Plastics Prize, which is supporting innovative youth entrepreneurs in Mombasa, particularly women and entrepreneurs living in urban slums to reduce marine plastic waste in Mombasa County by driving the development of youth-led sustainable businesses. Program design is actively underway in South Africa and Southern Africa Regional. All of these programs are supporting waste management and 3Rs activities throughout the value chain.
- USAID ensures operations contribute to Embassy Green Diplomacy programs.
- USAID is also working with the Kenya Private Sector Alliance (KEPSA) to develop a
  governance structure and guidelines to establish the plastic Producer Responsibility
  Organization. KEPSA will also help sensitize the private sector to the National
  Sustainable Waste Management Act. These works will be the basis to implement
  Extended Producer Responsibility regulations by facilitating compliance and peer-to-peer
  benchmarking.
- Joined by 25 partners, BHA has funded and taken a lead role since 2019 in the Joint Initiative for Sustainable Humanitarian Assistance Packaging Waste Management (JI), a multi-stakeholder, global initiative exploring innovative ways to green packaging and supply chains. The JI leverages private sector engagement and last-mile community-led solutions for packaging waste management from supply chains. BHA funds a multi-disciplinary team that serves as the JI's secretariat and is responsible for compiling guidance, case studies and other resources, and for convening learning events, such as webinars and presentations in key humanitarian fora.

#### **Environmental Justice & Equity**

- USAID has advanced equality, inclusivity, and justice in the waste and plastic recycling sectors and improved these services and their impacts on overburdened communities. USAID has provided technical assistance in reducing plastic pollution in over 25 cities and awarded nearly 20 locally-led grants. Examples include:
- In the <u>Dominican Republic</u>, USAID provided technical support to the national government to remediate two open dumpsites (Samaná and Las Terrenas) and addressed the human health concerns impacting communities in close proximity to the dumpsites. A sorting area for informal waste workers to separate plastic waste for recycling was also created.
- In the Philippines, through the WWEE activity, USAID expanded opportunities for women to advance their role in the waste value chain by establishing or expanding their plastic collection and recycling businesses.



• In <u>Peru</u>, USAID partnered with the City of Pisco to develop a reliable and effective waste collection and routing system that increased plastic recycling rates for the entire city, including previously unserved areas.

#### **Education & Outreach**

- USAID has trained over 7,100 individuals from local government, the informal waste sector, and local organizations to build local capacity for solid waste management planning and programs that reduce ocean plastic pollution. The program also promoted social and behavior change through educating communities on sustainable practices. USAID provided technical assistance in this area to over 25 cities and awarded more than 25 locally-led grants. Examples include:
  - o In <u>Sri Lanka</u>, USAID has motivated and educated school children as agents of change to reduce the plastic waste entering our ocean.
  - o In Peru, grantee Inforegion Agencia de Prensa Ambiental (Inforegion) developed an education and communication strategy and related resources based on formative behavior change research that identified public perceptions of waste and the factors or drivers that would support people's adoption of responsible waste management behaviors.
  - Olobally, USAID has shared evidence and best practices through Clean Cities, Blue Ocean's virtual resource hub, which features on-demand technical trainings and videos on topics ranging from siting and designing landfills, implementing data-driven social and behavior change programs, to ensuring health and safety in waste management.
  - o Internal to USAID, the Solid Waste and Ocean Plastics Community of Practice hosts regular presentations and panels of Agency, implementing partners, and external experts for a group of more than 90 USAID staff working on plastic pollution issues from DC and over 20 USAID Missions.

#### Funding Opportunities & Awards

• USAID has awarded over \$11 million in grants, including grants to more than 50 local organizations and in-kind support to more than 20 city governments to implement effective, locally-led solutions to eliminate ocean plastic pollution, with nearly \$1 million in additional grants under negotiation. Many of the bilateral and regional ocean plastic programs designed as part of the Save Our Seas Initiative included Grants Under Contract components, such as USAID/Sri Lanka and Maldives' Ocean Plastics Reduction activity and USAID/Vietnam's Vietnam Action Against Plastic Pollution (VAAPP) activity.

### **Department of Agriculture (USDA)**

#### **Procurement & Sustainability**

The USDA Contracting Desk Book provides guidance that USDA Agencies should take
actions to reduce and phase out procurement of single-use plastic products, to the
maximum extent practicable. The Desk Book also provides a sample evaluation factor for
contract solicitations that asks offerors to describe how single-use plastic is avoided or
reduced in the products or services provided. The USDA Contracting Desk Book



- provides acquisition regulations, policies, procedures, guidance, and information to USDA Agencies.
- USDA reinforces statutory requirements to purchase recycled-content products and support markets for those products by providing training to the acquisition community.

#### Source Reduction

USDA's Forest Service is pursuing a net zero-waste initiative, including plastic waste, at
various facilities, recreation sites, and fire incident locations with goals set for 2030.
 Waste streams, including plastic waste, will be audited at some facilities and
recreation sites. Data from these audits will be used to minimize waste and develop
solutions.

#### Solid Waste Management

- USDA facilities report annually on amounts of nonhazardous solid waste generated and diverted through an online data collection system.
- USDA's National Greening Fire Team (GFT) has been leading an on-site incident recycling program for the past three years; this program diverts a wide range of materials from community landfills, including plastic waste.

#### Research & Development

- USDA's Agricultural Research Service is performing research on several topics:
  - o Developing microorganisms for biopolymer production
  - Developing cost-effective carbon feedstock for fermentation that produce bioplastic
  - o Converting food waste into a commercially-viable family of bioplastic
  - Converting agricultural residue into functional fillers that will improve commodity plastics
  - o Developing foamed biopolymer plastic from agricultural residue
  - o Producing environmentally friendly bioplastic from lactose
  - o Producing cellulose reinforced-soybean oil polymer

### **Department of Commerce—International Trade Administration (ITA)**

#### International Efforts

- ITA industry and trade specialists are dedicated to enhancing the global competitiveness of the United States circular plastic industries, including bio-based resins and plastic products, plastic waste management technologies and recycled plastic, expanding their access to foreign markets, and securing United States domestic supply chains.
- ITA supports exports of United States environmental technologies to capture plastic waste and improve waste management practices abroad, including providing market intelligence and highlighting opportunities in various markets to United States exporters through its <a href="Environmental Technologies Top Export Market Rankings">Environmental Technologies Top Export Market Rankings</a> report and ad-hoc country-specific analysis.



- ITA recruits and hosts foreign buyers for United States environmental technologies, plastic, and circular plastic industry trade shows.
- ITA's Office of Material Industries and the Office of Energy and Environmental Technologies administer advisory committees, such as the Environmental Technology Trade Advisory Committee that advise the Secretary of Commerce on ways to facilitate trade in environmental technologies, biobased and recycled plastic, and policies to support circular plastic economies and products.
- ITA works with agencies such as the Environmental Protection Agency (EPA) to advance trade in recycled plastic via the Organization for Economic Cooperation and Development (OECD) Control System for Waste Recovery and the bilateral agreements the United States maintains with Canada, Mexico, Malaysia, the Philippines, and Costa Rica.

#### Public-Private Partnership

• ITA facilitates trade in recycled materials through its <u>Market Development Cooperator Program</u>, including through a partnership with the Recycled Materials Association to encourage governments and industry to adopt international specifications for scrap metals, paper, glass, plastic, and textiles. This effort supports circularity, while reducing barriers to trade in scrap and recycled material.

## Department of Commerce—National Institute of Standards and Technology (NIST)

#### Research & Development

- NIST works with industry and academia to enhance economic security and improve quality of life. NIST's portfolio of services for measurements, standards, and legal metrology provide solutions that ensure measurement traceability, enable quality assurance, and harmonize documentary standards and regulatory practices. NIST's research and data activities that contribute to addressing plastic pollution include:
  - o <u>MIST's Circular Economy Program</u> supports the nation's need to transition away from a model in which materials are extracted from the environment, manufactured into products, used, then discarded (a so-called "linear economy") toward one in which the atoms and molecules that make up those products repeatedly cycle within the economy and retain their value. The program invests in materials and product design for reduced demand and improved pathways back to the supply chain; nano-and micro-plastic metrology and standards development; data and models for improved decision making along the supply chain; and better measurement methods and data for the assessment of environmental impacts of plastic.
  - O Beyond the Circular Economy program, NIST laboratories have made extensive contributions to measurement methods, reference materials and data, and calibration methods and specimen critical to the evaluation of environmental contaminants, including per-and poly-fluoroalkyl substances (PFAS), and other chemicals. NIST is also collaborating with the staff of the Consumer Product Safety Commission (CPSC), EPA, and the National Institute for Occupational



Safety and Health (NIOSH) on evaluating emissions, factors influencing emissions, and the potential toxicity from exposure to emissions from 3D printers, including the release and accumulation of nanoplastic as well as the potential release of nanomaterials from 3D printed products.

- In 2021, NIST published Circular Economy in the High-Tech World.
- In 2022, NIST published <u>An Assessment of Mass Balance Accounting Methods for</u> Polymers.
- In 2022, NIST published <u>Facilitating a Circular Economy for Textiles.</u>
- In 2022, NIST with VitalMetrics <u>published Life Cycle Environmental Impacts of Plastics</u>: A Review.
- In 2023, NIST with American Society for Testing and Materials (ASTM) International published Fostering a Circular Economy for Manufacturing Materials.

#### Data Collection

- In 2023, NIST added more than 8,000 new plastic additives data entries to the NIST mass spectral database update. These entries were based on a cross reference of existing entries with known additives in the formulation of plastic products, and will be used in data analysis software for identification of their presence in complicated samples.
- In 2021, NIST commissioned a review of plastic life cycle assessment (LCA) tools to identify data gaps in existing methods, and needs for additional data and research. This was followed in 2023 by an intercomparison study of LCA tools and datasets to demonstrate challenges with interoperability across models and regions, as well as highlighting the need for expansion of data resources and inputs.
- NIST facilitates a program on <u>measurements and standards for contaminants in environmental samples</u>. NIST has been producing reference materials for contaminants in environmental samples for more than 50 years. Ongoing work includes development of materials certified for PFAS and microplastic content.

#### **Public-Private Partnerships**

- The <u>Center for Marine Debris Research</u> was established in 2019 as a joint institute between Hawaii Pacific University and NIST. CMDR's work strives toward the highest standards of chemical measurement science to investigate the quantities, sources, transport, fate, impacts, and reuse of plastic marine debris and has expanded to support the NIST Circular Economy Program.
- NIST <u>Training for Improving Plastics Circularity</u> Program aims to develop the future workforce needed to grow a circular economy for plastic. Grants have been awarded to 11 universities to develop new curricula for students who are interested in helping to solve the growing problem of plastic waste. The new curricula will focus on chemistry, economics, business management, entrepreneurship and related topics. A community of practice is being established with the grant recipients to increase awareness and accelerate adoption of their work.



#### **International Efforts**

- NIST participates in both the International Organization for Standardization (ISO) and ASTM International standardizations efforts, including having a leadership role on textiles and sustainability. NIST also engages on pre-standards nanoplastic metrology work with the Versailles Project on Advanced Materials and Standards (VAMAS) – TWA 45 (Micro and Nano Plastics in the Environment).
- NIST co-organized the APEC Workshop on "Nanoplastics in Marine Debris in the APEC Region" (NIST Co-organizers, under the Food and Drug Administration (FDA) leadership, December 2021) (report August 2022) with the goal of establishing "an APEC-wide community of researchers, policymakers and industrial representatives dedicated to improving understanding of, and identifying opportunities for remediating or eliminating, the problems associated with micro- and nanoplastics in marine debris."

#### **Environmental Justice & Equity**

• NIST manages a multi-faceted <u>Community Resilience Program</u>, assisting communities and stakeholders on issues related to buildings and the interdependencies of physical infrastructure systems. The Community Resilience Program, part of NIST's broader disaster resilience work, complements efforts by others in the public and private sectors. NIST focuses on research, community planning and guidance and stakeholder engagement. Aside from being well-poised to launch current work related to local and regional plastics recycling systems, this program invests in fundamental methods and metrics for evaluating and guiding decision-making based on physical, social, and economic systems at the community scale, of which waste collection systems, and material (re)use patterns are one part.

# Department of Commerce—National Oceanic and Atmospheric Administration (NOAA)

#### Source Reduction

- Plastic items are the most common type of marine debris found in the ocean, waterways, and Great Lakes. From consumer items like straws and disposable utensils, to bait bags, escape vents, and ropes used in fisheries, much of the marine debris addressed by the work of the NOAA Marine Debris Program (MDP) and its partners is plastic. During fiscal years (FY) 2018-2023, the NOAA MDP awarded nearly \$2.9 million in federal funding for projects that prevent marine debris (source reduction, reuse, and outreach and education), including approximately \$1.3 million provided under the United States-Mexico-Canada Agreement (USMCA) Implementation Act in FY 2022. Additionally, the NOAA MDP awarded more than \$4 million for projects that worked on both removal and prevention of marine debris including plastic in the United States-Mexico and United States-Canada border areas.
- Starting in 2018, the NOAA MDP has implemented zero waste strategies for internal events and events hosted by the NOAA MDP. Building upon these efforts, National Ocean Service (NOS) leadership established the NOS Zero Waste Team to reform office operations and provide tools and guidance to increase NOS employees' sustainable behaviors, internally reduce use of plastic, and support NOS staff in sustainable purchasing options.



- The NOAA MDP funds projects around the United States that build and expand systems for reuse, reduce barriers to behavior change, and improve access to single-use plastic alternatives across communities. In recent years, through the competitive funding opportunities outlined above, the <u>NOAA MDP provided over \$1.5 million</u> for projects that are assisting local restaurants and businesses in transitioning to reusable systems, installing water bottle refilling stations, and working with students and school administrators to implement zero waste practices.
- To eliminate the need for single-use plastic and paper items at events such as workshops and meetings, NOAA's NOS Zero Waste Team was awarded a Department of Commerce Green Grant in March 2020 to create 48 zero waste kits. The kits were distributed to NOS program offices across the country to support in-person events. Each kit contains over 200 reusable items such as reusable cups, plates, utensils, nametags, and napkins. These kits are expected to divert an estimated 63,000 single-use items from events annually.

#### Solid Waste Management

• The NOAA MDP, through funded prevention and removal projects, supports sustainable management of solid waste, including plastic, through the collection of end-of-life vessels and fishing gear. These materials have been recycled, repurposed, returned to their owner, converted to energy, or used to manufacture new products, like cement. Other projects have turned to students and artists to design awareness campaigns to educate the public about proper waste disposal, wastewater management, and pollution prevention.

#### Post-leakage Capture & Clean-up

- The NOAA MDP supports locally driven, community-based marine debris <u>removal</u> <u>projects. In FY</u> 2018-2022, the NOAA MDP supported 48 removal projects, totaling over \$6 million in federal funding.
- In April 2023, the NOAA MDP <u>announced its newly awarded projects</u>. Twelve of the 14 projects, totaling approximately \$68 million in federal funding, focus on removal and disposal of large marine debris including abandoned and derelict vessels, derelict fishing gear, and other debris that is generally composed of plastic components and unable to be collected by hand. The other two projects recommended for funding, totaling over \$1 million, support the use of proven interception technologies to capture marine debris at or close to known marine debris sources or pathways. These projects focus on the deployment of interception technologies in environments where trash, plastic, and other persistent, reaccumulating macro-debris can be captured and removed.
- In April 2023, NOAA <u>Sea Grant announced \$27 million in projects</u> to address the
  prevention and removal of debris including plastic in marine and Great Lakes
  environments throughout the United States.
- In the past five years, the NOAA MDP <u>awarded more than \$27.5</u> million in disaster supplemental funding for marine debris assessment, removal, and disposal projects. This included disaster supplemental funding to address marine debris, including plastic, related to the consequences of several hurricanes.
- The NOAA MDP has historically supported collaborative missions to remove marine debris from the Papahānaumokuākea Marine National Monument. In September 2022,



the NOAA MDP awarded \$1 million in funding provided through the Bipartisan Infrastructure Law (BIL) to the National Fish and Wildlife Foundation to support the removal of marine debris in the monument. An additional \$1.2 million was awarded in 2023. By the end of FY 2023, three MDP-funded missions, resulting in the removal of more than 318,000 pounds of debris, much of which consisted of plastic, had been completed. The NOAA Marine Debris Program is awarding a total of \$5.8 million over five years to support this work in the monument.

- The NOAA MDP has also provided funding for several projects that implement a variety of trash interception technologies. Examples include <u>funding</u> to install trash traps to prevent debris including plastic from entering Florida's Aquatic Preserves in the Big Bend and Nature Coast region of Florida's Gulf Coast, and funding to improve the effectiveness of a trash boom in the Goat Canyon Sediment Basin in the Tijuana River watershed.
- The NOAA MDP has financially supported Ocean Conservancy's International Coastal Cleanup since 2006. The International Coastal Cleanup® engages people to remove trash from the world's beaches and waterways, identify the sources of debris and change their behaviors. NOAA's support helps to engage volunteers from around the world to remove millions of pounds of debris from coastal and inland waterways and document the debris removed; collect, tabulate and analyze the International Coastal Cleanup data to provide snapshots of marine debris by location and item through the annual Ocean Trash Index; and expand public awareness to create greater global understanding and engagement in addressing the marine debris crisis. For the past several years, plastic items have remained as some of the top collected items globally.

#### Research & Development

- The NOAA MDP <u>supports projects</u> that help expand understanding of debris by investigating where debris comes from, how it moves through the environment, and how it impacts wildlife and the ocean, waterways, and Great Lakes. From FY 2018 2023, the NOAA MDP provided more than \$3 million in funding for research projects. In FY 2023, the NOAA MDP <u>launched a study</u> in partnership with the National Center for Ecological Analysis and Synthesis to develop a framework to help governments estimate the social costs of plastic pollution. In FY 2020, the NOAA MDP provided support for the National Academies of Sciences, Engineering, and Medicine, to conduct a <u>study</u> (released in 2022) on the United States' contributions to global ocean plastic waste.
- The NOAA MDP funded a project led by the National Park Service (NPS) and Clemson University, in which beach sediments were collected and analyzed to assess the abundance and distribution of microplastics and microfibers on United States National Park beaches. The resulting report, Quantification of Microplastics on National Park Beaches, was published in 2017.
- The NOAA National Centers for Environmental Information Marine Microplastics

  product provides access to aggregated global data on microplastics in marine settings.

  The information is used to improve water quality and protect the ecosystem, especially coastal ecological habitats such as salt marshes and mangrove forests that help recycle nutrients, serve as breeding grounds for fingerlings, and permanent homes for oysters and



other coastal marine wildlife. This product can also be used to validate remote sensing technologies that identify and characterize microplastics from space.

#### Data Collection

- The NOAA MDP established the Marine Debris Monitoring and Assessment Project (MDMAP) in 2011. The MDMAP engages NOAA partners and volunteers around the world in surveying and recording the amount and types of marine debris on shorelines using a rigorous methodology. The MDMAP has engaged over 100 community organizations and thousands of volunteers in data collection on shorelines throughout the United States and beyond. As of 2023, over 6,700 surveys have documented 1,112,168 individual marine debris items at 540 sites in 26 United States coastal states and territories, resulting in at least 24 data products and publications.
- The <u>Marine Debris Clearinghouse</u> website is designed to allow active members of the marine debris community to intuitively discover and access data on marine debris efforts in removal, research, and prevention that can inform or improve their understanding of the issue and planning for operations of their own.

#### Public-Private Partnerships

- The NOAA MDP has Regional Coordinators working across the country to support projects and partnerships with state and local agencies, Tribes, nongovernmental organizations, academia, and industry that address marine debris including plastic locally. The NOAA MDP Regional Coordinators also work with partners to develop marine debris action plans and emergency response guides for regions and states. Marine debris action plans focus on solutions to the causes and impacts of marine debris in the regions, as well as outline operational best practices and data collection protocols.
- NOAA is collaborating closely with the Marine Debris Foundation as it works to
  establish public-private partnerships and cooperative agreements with a variety of
  organizations and stakeholders to prevent, remove, and better understand the impacts of
  marine debris including plastic.

#### International Efforts

- The NOAA MDP has worked closely with the Department of State and other regional economies in the APEC forum to develop and implement the APEC Marine Debris Roadmap, which guides APEC's work on understanding and addressing marine debris, including plastic marine debris, through promoting policy development, capacity building, research and innovation, and financing and private sector engagement.
- The NOAA MDP, in collaboration with other NOAA offices, continued to work with the Arctic Council on the unique marine debris issues in the region, including contributing to the development of monitoring guidelines and a monitoring plan that will aid in understanding the types and quantities of plastic marine debris present on shorelines, and ultimately how to prevent them. The guidelines and plan have been released by the Arctic Council's Arctic Monitoring and Assessment Programme Working Group, and the Regional Action Plan on Marine Litter was developed by the Protection of the Arctic Marine Environment Working Group.
- The NOAA MDP hosts meetings of the Interagency Marine Debris Coordinating Committee at least biannually, to provide a public interagency forum to coordinate



research, monitoring, education, and agency action to address marine debris including plastic.

- The USMCA Implementation Act appropriated \$8 million, available in FY 2020 through FY 2023, to carry out Section 3 of the Marine Debris Act (33 U.S.C. § 1952) in the North American region. The USMCA recognizes the importance of taking action to prevent and reduce marine debris, including plastic litter and microplastic, in order to preserve human health and marine and coastal ecosystems, prevent the loss of biodiversity, and mitigate the costs and impacts of marine debris.
- NOAA works through regional and global international organizations to promote international action to reduce plastic entering the ocean, including at the International Maritime Organization and in regional fisheries management bodies.

#### Environmental Justice & Equity

- In April 2024, the NOAA MDP and the National Marine Sanctuary Foundation awarded \$84,136 for 12 grants underneath the Ocean Odyssey FY 2024 Marine Debris Awards for Diversity, Equity, Inclusion, Justice, and Accessibility. These projects will support initiatives that investigate and prevent the adverse impacts of marine debris including plastic in communities that are underserved, underrepresented, or overburdened.
- The NOAA MDP works to consider issues of equity in reviewing grant proposals. As part of the grant proposal evaluation, reviewers score the proposals on various criteria, including whether the project involves entities that work in overburdened or high-need areas. This helps ensure that federal funding to prevent and remove plastic marine debris, and therefore lessen the negative impacts of plastic marine debris, are allocated to projects working in and with disadvantaged communities. The NOAA MDP incorporated new evaluation criteria into FY 2024 competitive funding opportunities to prioritize projects in disadvantaged communities, strongly encouraging applicants (and when relevant, sub-awardees) to incorporate justice, equity, diversity, inclusion, and accessibility through proactive, meaningful, and equitable community engagement in the identification, design, and/or implementation of proposed projects.
- Under the Marine Debris Act, 33 U.S.C 1952(d), federal funds for marine debris grants are generally capped at 50% of the total cost of the project. However, the NOAA MDP is authorized to waive "all or part of the matching requirement" for marine debris grants if the Administrator "determines that no reasonable means are available through which applicants can meet the matching requirement and the probable benefit of such project outweighs the public interest in such matching requirement." 33 U.S.C 1952(d)(2)(B). The NOAA MDP has granted this waiver in the past to Tribes, territorial applicants, and other applicants, and has a process in place to consider the circumstances for each applicant that submits a waiver of the match requirement in their grant application. This enables equal opportunity to applicants to bring plastic marine debris prevention and removal projects to communities in need.
- Since 2006, the NOAA MDP has worked with partners, including directly funding Tribes and Alaska Native organizations, and organizations in United States territories to conduct marine debris research, removal, and prevention, much of which is focused on plastic. For example, of the 13 prevention grants awarded in FY 2020, one was awarded



to the Aleut Community of St. Paul and another was awarded to North Slope Borough, which has over 50% Alaska Native residents. The NOAA MDP has also awarded multiple grants to prevent and remove marine debris including plastic to Tribes in the Pacific Northwest, including the Stillaguamish Tribe of Indians, Quileute Nation, Quinault Indian Nation, Makah Tribe, and Swinomish Indian Tribal Community.

- In addition, Tribes and territorial partners are invited to participate in the development of state and regional marine debris action plans. These plans act as strategic frameworks for marine debris stakeholders to address the problem of marine debris in their area. Action plans help to document, facilitate, and track local actions that prevent, research, and remove marine debris including plastic. These action plans are developed and carried out through broad partnerships with stakeholders, including Tribes and tribal communities.
- The NOAA MDP, within the Office of Response and Restoration, also supports workforce development programs that recruit and support students from underserved communities. With support from the National Marine Sanctuary Foundation, NOAA's Office of Response and Restoration coordinated a paid internship program for undergraduate students from the University of Maryland Eastern Shore, a Historically Black University. The Office of Response and Restoration is interested in expanding the program to additional Historically Black Colleges and Universities in future years. The NOAA MDP helped to create and lead this internship program, and hosted one intern. The NOAA MDP also hosted a NOAA Hollings Prep Program intern in the summer of 2021. The Hollings Prep Program is a pilot program that seeks to build a pool of diverse candidates (including those from underrepresented groups) for NOAA scholarship and fellowship programs. In addition, the NOAA MDP often hosts Knauss Fellows. The Knauss fellowship provides a unique educational and professional experience to graduate students who have an interest in the ocean, coastal, and Great Lakes resources, and in the national policy decisions affecting those resources. The NOAA MDP also has welcomed other Fellows, including a California Sea Grant Fellow and an Alaska Sea Grant Fellow. These efforts welcome diverse voices from a wide range of communities and areas of expertise into the science, education, and management of marine debris, including plastic pollution prevention.
- In order to reach a broader audience and make marine debris, including plastic marine debris, resources available to non-English speaking populations, the NOAA MDP has contracted with a professional translation service. This supports NOAA's mission to share knowledge and information with others, and the NOAA MDP's mandate to advance education and outreach. In FY 2023, the NOAA MDP translated marine debris fact sheets, video closed captions, and the Puerto Rico Emergency Response Guide into Spanish.

#### **Education & Outreach**

• To raise awareness and share methods for plastic marine debris prevention, NOAA MDP staff participated in school education programs and teacher workshops, conducted outreach at events, and engaged with local stakeholders. The NOAA MDP has supported the development of education and outreach materials, such as fact sheets, posters, activity books, and curricula to assist with reaching these audiences, and holds an annual national art contest for K-8th grade students. In FY 2023 alone, in addition to reaching nearly 400



educators, the NOAA MDP and its funded partners served over 34,000 youth and adults through formal and informal education programs focused on marine debris including plastic.

- The NOAA MDP has installed educational displays at National Marine Sanctuaries, National Estuarine Research Reserves, and National Parks around the country. Each display is tailored to the site's unique environment and encourages marine debris prevention among visitors. Many of these displays highlight the types and sources of plastic marine debris found on local beaches and waterways. In FY 2023, over 295,000 visitors viewed marine debris educational exhibits at five National Park Service sites.
- The NOAA MDP provided original marine debris and plastic pollution content through its website, blog, monthly e-newsletter, quarterly educator newsletter, and social media platforms, which included Facebook, Twitter (X), and Instagram. From FY 2018 2023, the NOAA MDP published 332 blog posts with 390,519 views and the website had 2,691,554 views. In FY 2023, the general MDP monthly newsletter had nearly 40,000 subscribers and the education-specific newsletter reached more than 7,000.
- NOAA Sea Grant works closely with communities across the country to address marine
  debris challenges in marine, coastal, and Great Lakes environments. Through research,
  extension, and education, Sea Grant is informing and enhancing strategies to prevent the
  creation of marine debris and remove marine debris, including plastic, from the
  environment. The NOAA MDP works in close partnership with Sea Grant on many of
  these efforts.

#### Funding Opportunities & Awards

- The NOAA MDP offers external competitive funding opportunities under its authority to enter into cooperative agreements and contracts and provide financial assistance in the form of grants for projects to accomplish the purpose set forth in the Marine Debris Act. The NOAA MDP has historically offered annual nationwide, competitive funding opportunities for marine debris removal, and alternating biennial funding opportunities for prevention and research. From FY 2018-2023, the NOAA MDP provided \$19,237,591 in competitive funding for removal, prevention, and research projects (not including BIL or Inflation Reduction Act (IRA), funding). Many of these projects focused on plastic.
- In April 2023, the NOAA MDP announced the 14 recommended recipients of the NOAA Marine Debris Removal awards for FY 2022 and FY 2023, totaling over \$69 million in federal funding for marine debris removal using funding from the BIL or IRA. The NOAA MDP received requests for \$330.6 million in federal funds under two priorities: removal of large marine debris and implementation of proven interception technologies. The NOAA MDP expects these projects to remove an estimated 10 million pounds of marine debris largely consisting of plastic.
- In April 2023, <u>Sea Grant announced \$27 million in projects</u> to address the prevention and removal of debris including plastic in marine and Great Lakes environments throughout the United States. Using Sea Grant's partnered approach to bring science together with communities for solutions that work, the projects supported transformational research and



the creation of local coalitions to address urgent marine debris prevention and removal needs.

- Through the Marine Debris Challenge competition, 10 projects across Alabama, Alaska, California, Hawai'i, Maine, Mississippi, New York, and South Carolina were recommended for approximately \$22 million in total funding.
- Through the Community Action Coalitions opportunity, a total of 19 projects across California, Delaware, Hawai'i, Louisiana, Maine, Maryland, Massachusetts, New Jersey, New York, Ohio, Oregon, South Carolina, Virginia, Washington, and Wisconsin were recommended for approximately \$5 million in total funding.
- In August 2023, the NOAA MDP <u>announced</u> two FY 2024 BIL Notices of Funding Opportunities. The NOAA MDP will award up to \$28 million across these two funding opportunities focused on large-scale removal and proven interception technologies to expand the collection and proper disposal of marine debris including plastic across the coastal United States and its territories.
- In September 2023, NOAA Sea Grant <u>announced</u> \$19 million in federal funding opportunities to address the prevention and removal of marine debris including plastic through a Marine Debris Challenge Competition and Marine Debris Community Action Coalitions.

### **Department of Defense (DOD)**

#### **Procurement & Sustainability**

- The Navy Supply Systems Command (NAVSUP), under the DOD, manages the Plastic Removal in the Marine Environment/Waste Reduction Afloat Protects the Sea (PRIME/WRAPS) programs. PRIME/WRAPS focuses on the reduction of plastic waste generated aboard surface ships and submarines by promoting the ordering of non-plastic substitutes, minimizing plastic used in packaging material, and reducing excess plastic packaging through contract provisions.
- The Navy provided crew members reusable water bottles and mugs, reducing plastic bottle waste by 25%.
- The Army is developing a strategy to phase-out the procurement of hard to recycle single-use plastic food service ware across Army installations by 2030.

#### Solid Waste Management

- DOD develops and implements integrated solid waste management (ISWM) goals, objectives, and targets to support DOD goals, under which plastic pollution is addressed. Under this instruction, DOD maximizes source reduction and diversion opportunities to efficiently manage solid waste as outlined in the ISWM hierarchy. This includes: source reduction, sustainable procurement of goods and services, reuse of materials, donation, recycling, composting and mulching, and waste to energy recovery.
- ODOD has Installation Qualified Recycling Programs (QRPs) that are able to recognize a
  positive economic benefit from recycling plastic. Typically, QRPs recycle PET and
  HDPE bottles.



#### International Efforts

• DOD implements the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V under the Act to Prevent Pollution from Ships (33 USC 1901-1915) which prohibits the discharge of any plastic into the marine environment.

#### **Department of Education (ED)**

#### **Education & Outreach**

• ED's <u>Infrastructure and Sustainability initiative</u> engages in communications and outreach efforts to spotlight schools', districts', and institutions' of higher education sustainability work, including beneficial waste management practices in schools. This effort encompasses developing and overseeing <u>United States Department of Education Green Ribbon Schools</u> recognition award, which has a waste management component, the school infrastructure and sustainability commitments, the <u>Green Strides Tour</u>, monthly ED Infrastructure and Sustainability News, efforts to coordinate internally and across the federal family and non-profit partners to communicate resources to schools, such as IRA and BIL programs administered by DOE and EPA, as well as numerous public engagement events on related sustainability topics.

#### **Department of Energy (DOE)**

#### **Procurement & Sustainability**

- The Energy Efficiency and Renewable Energy Office (EERE) and the Fossil Energy and Carbon Management Office coordinate with other agencies (EPA, DOT, USDA, DOD) on the LCA Commons, which provides LCA data and tools that support Environmental Product Declarations that enable companies and consumers to have some transparency of the lifecycle impacts of their products. EERE is working to include relevant data for plastic and other manufactured goods.
- DOE launched the <u>Waste Reduction Network</u> in 2019 as part of its Better Buildings, Better Plants program which works with United States manufacturers to set ambitious waste reduction goals. This effort includes a plastic reduction working group where partners are able to formalize waste reduction commitments with public goals and earn recognition for progress, access to a peer network to share solutions, and receive technical assistance from DOE and national laboratory experts.

#### Post-leakage Capture & Clean-up

• DOE funds the WaterPACT program, which is currently assessing and characterizing plastic waste in United States waterways. The ultimate goal of the program is to develop economically viable sensing, collection, and conversion technologies that can prevent waterborne plastic waste from entering the ocean.

#### Research & Development

- DOE's <u>Strategy for Plastics Innovation (SPI)</u> effectively brought together many capabilities to tackle plastic waste through a coordinated R&D approach. The strategic goals are:
  - o 1) Deconstruction: Create new chemical, thermal, and biological/hybrid pathways to deconstruct plastic efficiently into useful chemical intermediates.



- O 2) Upcycling: Advance the scientific and technological foundations that will underpin new technologies for upcycling chemical intermediates from plastic waste into high-value products.
- 3) Recyclable by Design: Design new and renewable plastic and bioplastic that have the properties of today's plastic, are easily upcycled, and can be manufactured at scale domestically.
- 4) Scale and Deploy: Support an energy- and material-efficient domestic plastic supply chain by helping companies scale and deploy new technologies in domestic and global markets, while improving existing recycling technologies such as collection, sorting, and mechanical recycling.
- The SPI includes <u>consortia and centers</u> across a variety of DOE offices that employ interdisciplinary efforts to achieve SPI goals with novel solutions and collaborative approaches. They can also serve as gateways for companies to access DOE-sponsored research at national laboratories and in academia: The EERE programs have several activities through the <u>Bio-Optimized Technologies to keep Thermoplastics out of Landfills and the Environment (BOTTLE)</u> consortium and connections with industry for development way to reduce plastic wastes in landfills.
- The <u>Reducing Embodied-energy And Decreasing Emissions (REMADE)</u>
  <u>Institute</u> improves recycling, recovery, remanufacturing and reuse of key materials including fibers, metals, e-waste, and polymers.
- Efforts on recycling of polymer-based composites through several efforts, including the <u>Manufacturing Demonstration Facility</u> at Oakridge National Lab, and through the <u>Institute for Advanced Composite Manufacturing Innovation</u>.
- The Center for the Upcycling of Waste Plastic (CUWP) is a multi-university center funded by DOE to provide technical, environmental, and economic information on chemical recycling of plastic wastes. CUWP consists of six universities, over fifteen industrial partners, one national laboratory, and one industry association.
- The Institute for Cooperative Upcycling of Plastics (iCOUP), led by DOE's Ames
   Laboratory, is an Energy Frontier Research Center. iCOUP scientists are discovering new
   chemical pathways to transform used plastic into a resource through recycling and
   upcycling.
- The Center for Plastics Innovation (CPI) seizes the unique opportunity to integrate a dataand systems-driven approach with molecular-level understanding, synthesis of novel, multiscale catalytic materials, new processing schemes, and functionalization approaches toward new polymers. The goal is to reconstruct the current polymer plastic waste paradigm to positively impact the United States and global economy via efficient and environmentally benign pathways.
- DOE's <u>Advanced Research Projects Agency</u> aims to decrease United States dependence
  on foreign resources, reduce greenhouse gas emissions, and improve energy efficiency.
  Specifically, the agency has awarded contracts to <u>Recycle Underutilized Solids to Energy</u>
  (<u>REUSE</u>), an exploratory program to develop conversion technologies for unrecycled
  plastic and paper to fuel or chemicals.



- The <u>Advanced Materials and Manufacturing Technologies Office</u> funds the <u>Manufacturing Demonstration Facility</u> at Oak Ridge National Laboratory whose aim is to develop and aid the adoption of additive manufacturing and composite technologies. It has activities to address recycling of plastic and composite materials. The <u>Hub & Spoke Sustainable Materials & Manufacturing Alliance for Renewable Technologies</u> (<u>SM2ART</u>) is developing renewable, high-performance feedstocks to replace fossil fuel derived materials for advanced manufacturing applications.
- In 2019, DOE's Office of Science Basic Energy Sciences program hosted a "Roundtable on Chemical Upcycling of Polymers" to identify the fundamental challenges and research opportunities that could accelerate the transformation of discarded plastic to higher-value fuels, chemicals, and materials.
- In 2020, the Office of Fossil Energy and Carbon Management's Office of Clean Coal and Carbon Management published a <u>strategic vision</u>, highlighting future efforts on co-firing plastic, CO2 conversion to plastic, and manufacturing of plastic from coal and byproducts, and released a "Hydrogen Strategy" highlighting the need to address several key challenges, including gasification of plastic.

#### Data Collection

- With support from the DOE, the National Renewable Energy Laboratory is collecting
  data on waterborne plastic debris as part of the <u>Waterborne Plastics Assessment and</u>
  <u>Collection Technologies</u> (WaterPACT) project. The WaterPACT project has four mission
  aims:
  - Characterize, quantify, model, and estimate the value of the range of United States waterborne plastic and leachates (chemicals from plastic that leach into water)
  - Develop models, analyses, and technologies to reclaim and remediate waterborne plastic debris
  - Leverage investments from DOE's Water Power Technologies Office and Advanced Materials and Manufacturing Technologies Office in distributed energy generation, blue economy markets, materials characterization, recycling/upcycling, modeling, and data science to support technology developers
  - o Identify, understand, and reduce environmental and health stressors disproportionally impacting underserved communities.
- DOE-funded national laboratories have performed and published several studies to understand the material flows of plastics in the United States as well as comprehensive assessments of plastic waste by resin type at the state and local level.
- The BOTTLE consortium performs <u>analysis</u> such as techno-economic analysis (TEA), LCA, and environmentally extended input-output (EEIO) modeling of emerging plastic recycling technologies.
- In 2019, the Bioenergy Technologies Office and Advanced Materials and Manufacturing Technologies Office hosted the "<u>Plastics for a Circular Economy Workshop.</u>"



- Stakeholders from industry, national laboratories, academia, and government agencies contributed to the conclusions in the <u>workshop report</u>.
- In 2023, the <u>Transitioning to a Sustainable, Circular Economy for Plastics Workshop</u> brought together stakeholders from industry, national laboratories, academia, government agencies, and non-profits to discuss challenges and opportunities related to plastic sustainability and circularity. Workshop report is forthcoming.

#### **Public-Private Partnerships**

• DOE's <u>Reducing Embodied-energy And Decreasing Emissions (REMADE)</u>
<u>Institute</u> brings together industry innovators, academic researchers, trade organizations, and national labs to accelerate the United States' transition to a circular economy. Its mission is to improve recycling, recovery, remanufacturing and reuse of key materials including fibers, metals, e-waste, and polymers. Combined federal and private investment in REMADE efforts is expected to reach \$140M by the end of 2025.

#### Environmental Justice & Equity

- DOE has created the <u>Waste to Energy Technical Assistance Program</u> which pairs local governments (towns, cities, counties) with organic waste subject matter experts at the National Laboratory to address capacity and knowledge gaps that the community may have. The program offers assistance in a variety of ways including resource assessment, cost-benefit analysis, environmental impacts analysis, and evaluation of technology options that are best tailored to that community's individual needs. Available databases, such as the <u>Energy Justice Mapping Tool Disadvantaged Communities Reporter</u>, are being implemented in life cycle and technoeconomic analysis of plastic deconstruction and process redesign.
- Both BOTTLE (<u>publications</u>) and CUWP include a focus on environmental justice, primarily through life cycle assessment of various plastic recycling technologies and novel bioplastic, in addition to informing siting of future facilities.
- One of the aims of the <u>WaterPACT</u> program is to identify, understand, and reduce environmental and health stressors disproportionally impacting underserved communities.

#### **Education & Outreach**

- DOE's funding related to plastic has included covered education and outreach portions, examples include:
  - o iCOUP (see above)
  - <u>CUWP</u>, a multi-university award that has a mandated 20% education and outreach component. This has resulted in undergraduate university classes, and summer program for undergraduate researchers, plastic recovery site visits, and a handout series on plastic recycling targeted at non-scientists.
  - o <u>REMADE</u> has developed educational content on plastic circularity that is available and broadly accessible in modules.



#### Funding Opportunities & Awards

- <u>20+ competitive projects</u> between the Advanced Materials and Manufacturing Technologies Office and the Bioenergy Technologies Office focused on plastic deconstruction, upcycling, and redesign.
- The <u>Small Business Innovation Research (SBIR)</u> helped certain small businesses to conduct research and development, and has provided funding for plastic compatibilizers in recycling.
- <u>Biomass Feedstock National User Facility</u> supported the Biomass Feedstock Library as well as the Biomass Characterization Facility which has capabilities for advanced plastic sortation and processing. It recently underwent a \$15 million upgrade.
- Improved Bioenergy Resource Recovery and Conversion Systems Projects: DOE has awarded \$29.5 million to 15 projects to improve the science and infrastructure for utilizing waste streams, often disproportionately located in overburdened communities, and support the development of improved organisms and inorganic catalysts for the production of valuable biofuels and bioproducts that can benefit the local energy economy.
- <u>Energy Frontier Research Centers</u> selected to solve fundamental challenges that enable the circular economy of plastic including <u>iCOUP</u>, the <u>Center for Closing the Carbon</u> Cycle, and the Center for Plastics Innovation funded by DOE's Office of Science.
- The <u>Re-X Before Recycling Prize</u> which seeks innovations to unlock new or expanded supply chains that can reintegrate end-of-use products into the economy via re-use, repair, refurbishment, remanufacturing, and/or repurposing.
- The Wind Turbine Recycling Prize aims to develop a cost-effective, sustainable recycling industry for two types of materials used in wind turbines: fiber-reinforced composites and rare earth elements.

# Department of Health and Human Services—Centers for Disease Control (CDC)

#### **Data Collection**

• CDC's National Institute for Occupational Safety & Health (NIOSH) has conducted studies of plastic particle emissions from 3-D printers. NIOSH is now conducting research to optimize in vitro exposure of nano and microplastic using air-liquid interface models in order to compare common plastic types of different sizes using toxicity screening battery of assays with the intention of establishing plastic-based reference materials for future research. Future research will focus on in vivo studies of micro/nano plastic via installation or inhalation that are encountered in occupational activities for evaluation of pulmonary and systemic effects.



# Department of Health and Human Services—Centers for Disease Control (CDC)—National Center for Environmental Health (NCEH) & Agency for Toxic Substances and Disease Registry (ATSDR)

#### Research and Development

- ATSDR has published or co-authored several articles related to plastics and human health, including:
  - o A review of data for quantifying human exposures to micro and nanoplastics and potential health risks—2021 Science of Total Environment
  - Identifying Research to Evaluate Exposures to Microplastics—2022 JEH ATSDR direct column
  - Microplastics Scoping Review of Environmental and Human Exposure Data— 2023 MDPI
  - Systematic Review of Microplastics and Nanoplastics in Indoor and Outdoor Air: <u>Identifying a Framework and Data Needs for Quantifying Human Inhalation</u> <u>Exposures</u>,—2024 Journal of Exposure Science Environmental Epidemiology
  - Worker Studies Suggest Unique Liver Carcinogenicity Potential of Polyvinyl chloride Microplastics—2023 American Journal of Industrial Medicine
  - Hubs for Interactive Literature (HILs) as a Complimentary Visual Tool for Reviews—2024 MDPI Microplastics

# Department of Health and Human Services—Centers for Medicare & Medicaid Services (CMS)

#### Solid Waste Management

• CMS participated in plastic recycling programs in the Headquarters buildings, local leases, and regional office buildings through the General Services Administration, and the HHS Program Support Center (PSC).

# Department of Health and Human Services—Food and Drug Administration (FDA)

#### **Procurement & Sustainability**

- HHS hosts an annual FDA Green Labs Expo to highlight sustainable lab products that
  may contain less plastic or plastic packaging and highlights sustainable activities and
  examples for researchers to reduce plastic use. FDA also created a Sustainability Team
  and a Sustainable Labs Teams to provide more sustainable options in their facilities and
  inform employees how to properly dispose of or recycle plastic.
- HHS/FDA operates a Free Supplies Program which coordinates the collection and distribution of new or gently used office supplies. The FDA Sustainability Team also repurposes gently-used ergonomic equipment, and it encourages and educates researchers to use surplus laboratory equipment to reduce landfill waste and repurpose usable equipment when feasible.



- FDA assisted industry in bringing plastic food packaging made from recycled materials to market by reviewing voluntary submissions on recycling processes to assess the ability of those processes to produce recycled material suitable for food-contact applications. Through calendar year 2022, FDA has issued 286 opinion letters on the use of post-consumer recycled plastic in food packaging.
- FDA has issued <u>Guidance to Industry</u> as part of this effort to ensure the safety of plastic food packaging made from recycled materials. By providing clear guidance to recyclers and assurance of safety to consumer brand users of packaging, FDA's review program helped divert plastic packaging from the waste stream back into finished products, reducing the potential for pollution from disposable plastic packaging.

#### Solid Waste Management

- FDA's Sustainability Team:
  - o Provided recycling options for all brands of toner cartridges to FDA employees.
  - Provided collection containers in FDA offices for the recycling of used personal cell phones through the Cell Phones for Soldiers Program.
  - o Reduced electronic peripheral plastic waste through the White Oak Campus Recycle Electronics Right Program.
  - Partnered with GSA to recycle plastic wrap on the White Oak Campus as well as densify and recycle expanded polystyrene (EPS) to significantly reduce the EPS totals going to the landfill.
- FDA's Sustainable Labs Team has developed guidance and educational materials to highlight how to properly dispose of plastic and identifies plastic that can be recycled.

#### **Education & Outreach**

- FDA offers annual outreach and education events that present many opportunities for employees to reduce their use of plastic:
  - o Earth Day Expo—April
    - The 2024 Earth Day theme was Planet vs. Plastics.
    - The in-person event held at the White Oak campus included distribution of surplus office supplies from the FDA Free Office Supplies Program, an interactive plastic recycling challenge, and plastic awareness activities for children including an upcycling activity, sustainability pledges (60% of pledges referenced reuse, reducing plastic consumption, or choosing alternative materials), and displays about single use plastic consumption.
    - The comprehensive virtual event published on insideFDA provided plastic education to staff agency wide.
  - Green Labs Expo—October
  - The 2023 Green Labs Expo in-person event held at the White Oak campus included distribution of supplies from both the FDA Free Office Supplies Program and the FDA Free Lab Supplies Program.



- o The virtual event, available to FDA staff, connected employees with vendors that offer plastic recycling, renewable packaging, materials made from bioplastics, reusable, or recyclable plastics, and circular plastics solutions. It also contained sections on Sustainable Laboratory Products and Waste Reduction.
- o America Recycles Day—November
  - The 2023 America Recycles Day in-person event at the White Oak campus included information tables on how to recycle items in Montgomery County, Maryland as well as neighboring counties, and distribution of supplies from the FDA Free Office Supplies Program.
  - The virtual event available to FDA staff focused solely on plastic reduction and recycling, and included best practices for recycling in the office, in a lab, and at home.
- The FDA Free Supplies Program promotes reuse throughout the agency, reducing the amount plastics ending up in landfills
  - The FDA Free Office Supplies Program
    - Redistributed \$20k in supplies so far in CY 2024
    - Redistributed \$153k in supplies since 2018
  - The FDA Free Lab Supplies Program
    - Redistributed \$33k in supplies to date in CY 2024
    - Redistributed \$52k in supplies since 2023
- FDA/NCTR has organized and led the Global Summits on Regulatory Science (GSRS) that included sessions on micro/nanoplastic in 2019, 2022 and 2023, and an APEC workshop on Nanoplastics in Marine Debris in the APEC Region to bring global regulatory and industry stakeholders together to discuss the current status of micro/nanoplastic pollution and potential collaborative research to address the issue.
- FDA/CFSAN and the American Chemical Society have formed a partnership to provide a
  chemistry colloquium series focused on high-quality, cutting-edge chemistry related to
  food, food packaging, and their safety and environmental aspects. This includes the 2021
  edition on Micro- and Nanoplastics in Food and the 2023 edition on Biobased,
  Biodegradable, and Biosustainable polymers.
- FDA participates in knowledge sharing by presenting at various national and international meetings. Examples of public webinars where FDA has presented findings from its scientific assessments include the National Academy of Sciences, Medicine, and Engineering Food Forum entitled "Microplastics from Food and Water: State of the Science and Potential Impacts on Human Health" held in December 2021 and the National Nanotechnology Initiative (NNI) technical webinar entitled "Overview of U.S. Government Activities Addressing Micro- and Nanoplastics Issues" held in May (Session 1) and June (Session 2) 2023.
- FDA has been working to advance the science on microplastic and nanoplastic in food through analysis of testing methodologies and other related work, including recently



publishing an article in the journal Analytical Chemistry on the regulatory perspective of analytical methods for detecting microplastic and nanoplastic in food (<u>Regulatory Science Perspective on the Analysis of Microplastics and Nanoplastics in Human Food | Analytical Chemistry (acs.org)</u>).

#### Research and Development

• FDA conducted research to aid in the identification and quantification of the most common polymers documented in the environment. This work serves as a baseline reference and database for the identification and quantification of micro- and nanoplastic and was published in NanoImpact Volume 30 in April 2023.

#### International Efforts

- FDA engages in the World Trade Organization dialogue on plastic pollution as related to technical barriers to trade.
- FDA organized the APEC sponsored workshop on <u>Nanoplastics in Marine Debris in the APEC Region</u> and <u>Global Summit on Nanotechnology and Nanoplastics</u> with other United States agencies and international counterparts.

### Department of Health and Human Services—National Institute of Environmental Health Sciences (NIEHS)

#### **Education & Outreach**

• In 2020, the Standing Committee on the Use of Emerging Science for Environmental Health Decisions of the National Academies of Sciences, Engineering, and Medicine (NASEM) held a workshop to explore "Emerging technologies to advance research and improve decisions on the environmental health effects of microplastics". At this NIEHS sponsored workshop, it was recognized that there is now sufficient evidence that humans are ingesting or breathing in microplastic. It was concluded that there are significant and critical knowledge gaps about the risks and impacts of microplastic on human health. The workshop further highlighted the need for future studies with controlled and focused approaches, application of advanced technologies, and incorporation of a cross-disciplinary approach. A need for studies incorporating the less understood nanoplastic was highly emphasized as well.

#### Funding Opportunities & Awards

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- HHS signaled a special interest in applications that investigate exposure to, and health effects of, microplastic, and nanoplastic. To inform potential applicants of this interest, in 2022, NIEHS released NOT-ES-23-002: Notice of Special Interest (NOSI): Understanding Exposure and Health Effects of Micro and/or Nanoplastics (nih.gov). This NOSI seeks to support research to gain comprehensive understanding of the physiochemical characterization, exposure, and related human health effects of microplastic and nanoplastic. This notice applies to research applications due dates through November 16, 2027.
- The NIEHS-NSF Centers for Oceans & Human Health funding opportunity included plastic pollution/microplastic as a priority area in the most recent notice: <u>RFA-ES-22-005</u>: Centers for Oceans and Human Health 4: Impacts of Climate Change on Oceans and <u>Great Lakes (COHH4) (P01 Clinal Trial Optional) (nih.gov)</u>. This interagency



partnership fosters collaboration among environmental and physical scientists and biomedical researchers to understand the impact of ocean/Great Lakes exposure on human health and develop mitigation and outreach strategies. The newly awarded grant to University of Rochester, Lake Ontario Center for Microplastics and Human Health in a Changing Environment, will characterize and predict plastic pollution and human exposure to microplastic in Lake Ontario.

#### **Department of the Interior (DOI)**

#### **Procurement & Sustainability**

- DOI's <u>Secretary's Order 3407</u> aims to reduce the procurement, sale, and distribution of single-use plastic products and packaging with a goal of phasing out single-use plastic products on Department-managed lands by 2032. S.O. 3407 also requires bureaus and offices to develop Sustainable Procurement Plans (SPPs). SPPs require bureaus to analyze alternatives to single-use plastic products, such as compostable or biodegradable materials, or 100% recyclable or 100% recycled materials as defined in section 2 of the Save Our Seas 2.0 Act. DOI bureau SPPs were finalized and made publicly available on DOI.gov in September 2023.
  - Additionally, DOI's National Park Service released the third edition of their <u>Green Parks Plan in 2023</u>, showcasing their work as a federal agency leading by example in many areas of sustainability, including reducing plastic pollution.
  - The United States Fish and Wildlife Service (FWS) is also revising its concession policy with the intent of removing single-use plastic from all concession operations.

#### Source Reduction

- Yosemite National Park eliminated sales of all single-use plastic beverage containers in 2022 and is also reducing use of plastic wrap/packaging and promoting use of reusable water bottles.
- FWS's National Conservation Training Center has been working to reduce the use and environmental impact of single-use plastic through its operations. They no longer supply plastic water bottles—guests now receive water in cans with boxed/bagged lunches and youth groups receive reusable water bottles. They have also transitioned away from plastic to paper straws, paper-based to-go containers, and biodegradable cutlery.
- FWS will eliminate sales of single-use plastic bottles at 25% of visitor centers at national wildlife refuges and national fish hatcheries by the end of 2024.
- In their Sterling, VA location, the Bureau of Safety and Environmental Enforcement and the Bureau of Ocean Energy Management eliminated single-use plastic containers from their vending machines.
- DOI's National Conservation Training Center provides all youth groups with reusable water bottles upon check in to eliminate the use of plastic drinking containers.
- DOI's Office of Facilities and Administrative Services has stood up the Udall Building Sustainable Workgroup, a diverse cross functional team of facilities, acquisitions, environmental, and safety representatives focused on the sustainable health of the Udall



Building and employees. Working with the vendor in the 4th floor snack bar, they have replaced plastic stirrers and bags with paper alternatives and working to replace the water and soda beverages to sustainable alternatives.

#### Solid Waste Management

- DOI collects solid waste and recycling information annually and compiles the data in a Departmental Report on Solid Waste Management. In FY 2023, DOI diverted 93% of construction and demolition waste and 30% of municipal solid waste.
- In FY 2023, DOI allocated recycling funds from the General Services Administration's National Capital Region Recycling Program to improve recycling efforts at five bureaus including:
  - Development of educational materials and resources to foster greater awareness of recycling operations
  - o Acquisition of recycling bins (including for specialty recycling)
  - Water bottle filling stations, and propane cannister recycling systems
  - Recycling of lab plastic at the United States Geological Survey (USGS) Water Science Center
- Many of the National Parks, including Grand Canyon and Big Bend, are assessing waste streams, and implementing best practices such as recycling infrastructure improvements, training for staff, and contract language improvements. At Big Bend National Park, public-private, community-based efforts are underway to update waste management at the park, including upgrades to infrastructure, recycling programs for propane and batteries, and installing water bottle filling stations. Big Bend National Park had a community input component that led to a trash pick-up day where they collected 30 tons of trash in one day. One of their goals is to reframe sustainability as a "way of life" not just a goal, but intrinsic to how they operate.

#### Post-leakage Capture & Clean-up

• DOI land management bureaus are all active stewards of the land, cleaning up litter leaked into the environment, including plastic. Cleanups regularly take place at coastal national wildlife refuges, islands within marine national monuments, and other DOI coastal lands that accumulate marine debris, including plastic. DOI bureaus also work with hundreds of volunteer groups across the country to coordinate litter clean-up events, many of which are on beaches and specifically target plastic pollution.

#### Research & Development

• All DOI bureau SPPs addressed plastic-related data collection methods, metrics, and reporting requirements. Additionally, as a primary federal source of science-based information on water use and availability, USGS conducted <u>water monitoring</u> and evaluated microplastic in lakes, rivers, and coastal waters.

#### Public-Private Partnerships

• Grand Teton National Park, Denali National Park, Yosemite National Park: A partnership between the National Park Foundation, Subaru of America, Inc., and the National Parks Conservation Association (NPCA) from 2015-2022, launched Zero Landfill Initiative pilots. The pilots encouraged increased waste generation awareness and



involve stakeholders inside and outside of the parks to grow composting and recycling programs, keeping 17 million pounds out of the landfill and saving approximately \$1.2 million.

• Through a partnership with the National Parks Foundation and various corporate sponsors, the NPS has installed or has planned installations of bottle refilling stations at multiple parks. Parks that will receive this funding include Big Bend National Park, the National Mall, Wolf Trap, Fort Sumter, Cape Cod, Rosie the Riveter and Little Bighorn. The National Mall, for example, has replaced 34 fountains as part of phase one of these installations.

#### Environmental Justice & Equity

• The presence of DOI lands in or near disadvantaged communities allows the Interior Department to play a role as a prominent, visible leader in reducing plastic procurement, municipal solid waste and plastic pollution in these areas. For example, the reduction of single-use plastic products in Glacier National Park will reduce the amount of plastic leaving the park's east entrance and entering the Blackfeet Reservation and/or Glacier County, Montana, communities identified as disadvantaged communities in the Climate and Economic Justice Screening Tool. Glacier County and the Blackfeet Nation do not have recycling services so the reduction of plastic in Glacier National Park will directly correlate to a reduction of plastic discarded or leaked onto the Blackfeet Reservation and/or Glacier County.

#### **Education and Outreach**

• All bureau SPPs under DOI address opportunities to shift public behavior to reduce single-use plastic products, including through data collection, educational programming, and signage and interpretation. (See the NPS Green Parks Plan above for an example). In 2020, the NPS partnered with the NOAA Marine Debris Program to raise awareness about the sources and impacts of marine debris and encourage individuals to take action to prevent marine plastic pollution. This five-year partnership supported the development and installation of educational exhibits in coastal national parks.

### **Department of Justice (DOJ)**

#### **Procurement & Sustainability**

- DOJ's Justice Management Division's (JMD) Environmental and Sustainability Services
  (ESS) is in the process of updating DOJ Policy Statement 1600.04, Environmental and
  Sustainability Management. EES staff in coordination with JMD Office of Acquisition
  Management are considering reducing and phasing out procurement of single-use plastic
  products, to the maximum extent practicable, under the sustainable procurement section
  of an initial draft policy. If approved and once complete, the guidance will encourage
  DOJ's acquisition workforce to reduce and phase out procurement of single-use plastic
  products.
- JMD Office of Acquisition Management issued an Acquisition Policy Notice on November 8, 2023 that provides that "Bureaus should consider reducing and phasing out procurement of single-use plastic products, to the maximum extent practicable."



#### International Efforts

 DOJ's Environmental Crimes Section (ECS) oversees DOJ's National Vessel Pollution criminal program; this includes criminal enforcement of MARPOL Annex 5 that covers discharges of garbage and plastic from ships. ECS's Deputy Chief chairs INTERPOL's Pollution Crime Working Group (PCWG), which has conducted several global operations targeting marine pollution including plastic. The PCWG collaborates with law enforcement partners and enforcement agencies from around the world to address emerging threats and take on a preventative role where possible.

## Department of Labor—Occupational Safety and Health Administration (OSHA)

#### **Education & Outreach**

- OSHA has developed a safety and health topics page to inform workers and employers of hazards related to the plastic industry and applicable <u>standards</u>.
- OSHA is developing guidance materials for workers in the plastic recycling industry.
- OSHA has developed an <u>eTool</u> specific for addressing hazards with plastic thermoforming machinery.

#### **Department of State (State)**

#### **Procurement & Sustainability**

• State encouraged a reduction in single-use plastic by providing language for posts and embassies abroad to use in cafeteria and commissary contracts. Posts can also reinvest funding from the sale of recyclables into sustainability and Green Team programs, and/or the Foreign Service National Emergency Relief Fund.

#### **Public-Private Partnerships**

• State launched an international public-private partnership (P3) to enhance circularity across the plastic lifecycle—the End Plastic Pollution International Collaborative (EPPIC). EPPIC will include partners from national and subnational governments, the private sector, Indigenous communities, academia, and civil society. The State Department used \$15 million to start-up EPPIC, along with additional funding of \$1.5 million to United Nations Environment Programme (UNEP) and the Basel Convention's Plastic Waste Partnership.

#### International Efforts

- State leads United States engagement in the negotiations for a global agreement on plastic pollution, which the United Nations Environment Assembly launched in early 2022, with the ambition of completing text negotiations by the end of 2024.
- State planned a United States and Latin American and Caribbean mayors' roundtable discussion at the Cities Summit of the Americas, April 26-29, 2023, that highlighted the need for local action on plastic pollution, drove new commitments, and garnered support in advance of the launch of EPPIC on the margins of the UN General Assembly meeting in September 2023.



- State launched a \$7 million grant with UNEP to help 18 selected developing countries establish and implement national action plans to combat plastic pollution and to support engagement of these countries in the negotiations for a global agreement on plastic pollution.
- Since 2022, State has provided \$500,000 to support the Basel Plastic Waste Partnership (PWP), established under the Basel Convention, to fund pilot projects to improve management of plastic waste at the global, regional and national levels and to prevent and minimize its generation. State plans to provide another \$250,000 to the PWP in 2024 to continue to fund pilot projects.
- In 2022-23, State contributed \$500,000 to the Marine Debris Management and Innovation Sub-Fund administered by the APEC forum. Projects funded under the MDMI sub-fund include capacity-building resources and events for 21 economies, work on microplastic, and projects tracking plastic in fisheries and the food chain.
- State became a member of the Global Ghost Gear Initiative in 2020, working to address abandoned, lost and otherwise discarded fishing gear (ALDFG) and building a worldwide database to inform decision-making and reduce ALDFG in our ocean. The Partnership for Atlantic Cooperation has made ghost gear a priority issue in 2024.
- State has actively been participating in a two-stage effort within the International Maritime Organization (IMO) to address the environmental risk associated with maritime transport of plastic pellets in freight containers, which was agreed upon in 2023. As part of the first stage, State has worked within the IMO to support development of an IMO circular with recommendations for carriage of plastic pellets by sea in freight containers, focusing in particular on packaging, notification, and stowage. The circular is expected to be finalized at the upcoming meeting of the Prevention, Pollution, and Response subcommittee in February 2024 and submitted to IMO's Marine Environment Protection Committee for approval. State has also been participating in ongoing discussions at the IMO related to the second phase, which is the development of amendments to mandatory instruments to address the carriage of plastic pellets by sea in freight containers.
- State has been a leader in establishing and continuing work on marine pollution through the annual Our Ocean conference. In 2023, 65 marine pollution commitments worth \$5.57 billion were made globally.

### **Department of Transportation (DOT)**

#### Source Reduction

DOT continues to encourage waste management audits of their facilities annually or as needed to track accurately and reduce waste generated. Data from these audits will be used to minimize waste and develop solutions. DOT's Energy and Resource Efficiency Program (EREP) staff is in the process of updating DOT Policy Order 4356A Pollution Prevention and Waste Management. The Department is focused on achieving net-zero waste at its facilities and exploring opportunities to pilot net-zero waste strategies. Fundamentally, DOT has adopted the EPA's recommended strategy for managing solid waste—Solid Waste Management Hierarchy—which prioritizes waste prevention,



followed by recycling (composting and remanufacturing), energy recovery, and lastly, treatment and disposal.

#### Solid Waste Management

• DOT collects solid waste and recycling information annually and compiles an internal solid waste management report to identify waste reduction opportunities and engagement sessions with stakeholders. In FY 2022, DOT diverted 97% of construction and demolition debris and 52% of municipal solid waste from landfill.

#### **Education & Outreach**

- In November 2022, DOT hosted a 'Lunch N' Learn' (webinar) session on Waste Management to celebrate America Recycles Day. The session was open to all DOT employees and provided an overview of DOT's waste management activities and goals. Additionally, three field offices presented information on their waste management activities in support of achieving their net-zero goals.
- In April 2023, DOT hosted a 'Sustainability Speaker Series' webinar on Waste
  Management to celebrate Earth Month. The session was open to all DOT employees and
  provided an overview of DOT's waste management activities and goals. Nearly 100
  employees joined the session to learn more about DOT's performance and activities to
  reduce waste, increase recycling and protect the environment.

#### **Environmental Protection Agency (EPA)**

#### **Procurement & Sustainability**

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- EPA's Comprehensive Procurement Guideline (CPG) program is part of the Agency's Sustainable Materials Management initiative. This program promotes a system approach to reducing materials use, associated greenhouse gas emissions that contribute to climate change, and the other environmental impacts over the materials' entire life cycle. A key component of the CPG program is EPA's list of designated products and the accompanying recommendations for recovered content, both post-consumer material content and/or total recovered material content.
- <u>Safer Choice Program</u> helps consumers, businesses, and purchasers find products that are safer for human health and the environment. The program supports EPA's pollution prevention efforts, including by requiring certified products to meet criteria regarding their packaging; packages must be made of recycled materials, be recyclable, or meet other sustainability criteria. The Safer Choice packaging criteria are in the process of being updated.
- Recommendations of Specifications, Standards, and Ecolabels for Federal Purchasing help purchasers identify and procure environmentally preferable products and services. The Recommendations leverage private sector approaches to defining and measuring sustainability by including over 40 private sector standards/ecolabels in more than 30 purchase categories. The Recommendations give preference to multi-attribute/life-cycle based standards/ecolabels that address key impact areas (also known as hotspots) and where a competent third-party certification program can verify product conformance.



#### Source Reduction

- In April 2023, EPA has released a draft National Strategy to Prevent Plastic Pollution, as mandated by Section 301 of the Save Our Seas 2.0 Act (2020). The Strategy identifies voluntary actions EPA and other domestic stakeholders can implement to eliminate the release of plastic waste into the environment by 2040. Actions include reducing the production and consumption of single-use, unrecyclable, or frequently littered plastic products and minimizing pollution across the life cycle of plastic products. The proposed actions support the United States' shift to a circular approach that is restorative or regenerative by design, enables resources to maintain their highest value for as long as possible, and aims to eliminate waste in the management of plastic products.
- Green Chemistry Challenge Awards (GCCA) promotes the environmental and economic benefits of developing and using novel green chemistry. The 2022 winner in the Climate Change category developed a technology to use biomass to produce chemicals that can replace petroleum-based products. These chemicals can be substitutes in the plastic industry. GCCA has a new focus area for 2024—Chemical and Process Design for Circularity.
- <u>Toxics Release Inventory Program</u> serves as an opportunity to characterize the upstream
  pollution associated with plastic manufacture, track progress in eliminating or reducing
  certain chemicals used in the manufacture of plastic products, and through disclosure of
  pollution prevention information as part of TRI reporting, incentivize innovation towards
  new chemistries and sustainable design considerations to create more opportunity for
  material reuse or recycling.
- <u>Trash Free Waters Program</u> provides technical and/or financial assistance for many place-based projects as well as developing publicly available technical resources addressing source reduction. Projects include trash capture and reuse and refill options to reduce single use plastic and plastic waste. Trash Free Waters is working on a Reusable Foodware project to launch city-scale reusable foodware systems in four cities. Project results will be shared with other cities.
- The Agency's <u>Pollution Prevention (P2) Grant program</u> includes several projects focused on increasing the use of safer and more sustainable food ware, including a project in Hilo, Hawai'i, to establish a safe, affordable, community-wide reusable food ware system.

#### Chemicals in Plastic Production

• Under the Toxic Substances Control Act (TSCA), EPA is required to <u>prioritize</u> and <u>evaluate</u> the risks associated with existing chemicals' manufacture, processing, distribution in commerce, use and disposal, and to <u>impose regulatory requirements</u> to address any unreasonable risks identified. EPA is currently evaluating several chemicals used as plasticizers, including seven phthalate chemicals. In December 2023, EPA began the process to <u>prioritize five additional chemicals</u> for risk evaluation under TSCA, many of which are involved in the production of plastic. TSCA risk evaluations and risk management rulemakings are both multi-year processes with statutory deadlines of 3-3.5 years to conduct a risk evaluation, and 2 years to complete risk management rulemaking.



- EPA leverages its statutory authorities to collect and/or require development of information on chemicals, including chemicals used in plastic production. The TSCA <u>Chemical Data Reporting program</u> requires some manufacturers and importers to provide EPA with information on the production and use of certain chemicals in commerce produced above a certain threshold. This serves as a source of information to characterize quantities of chemicals produced domestically or imported by plastic manufacturing sectors. Further, since 2021, EPA has issued a number of orders under <u>TSCA requiring testing on chemicals used in making plastics including HFPO</u>, a perfluoroalkyl substance.
- The TSCA New Chemicals Program plays an important gatekeeper role in ensuring the safety of new chemical substances before they are allowed to enter commerce, including chemicals used in the plastic industry. For example, in June 2023, EPA published a proposed rule for 18 chemicals made from plastic-waste-derived feedstocks (e.g., pyrolysis oils) that would ensure they are free from unsafe contaminants before they can be used to make transportation fuels.
- The 2021 Toxics Release Inventory National Analysis included a sector profile on the plastic product manufacturing sector (NAICS 3261), which identified trends in the quantities and types of chemicals released to the environment and managed as production-related waste.

#### **Emissions from Production**

- On February 27, 2024, EPA Administrator Michael S. Regan signed the Safer Communities by Chemical Accident Prevention rule, which finalizes revisions to the Risk Management Program to further protect vulnerable communities from chemical accidents, especially those living near facilities in industry sectors with high accident rates. The final rule includes new safeguards such as identifying safer technologies and chemical alternatives, requiring implementation of safeguard measures in certain cases, more thorough incident investigations, and third-party auditing. These updates should benefit nearby communities by reducing the frequency of chemical releases and their adverse effects. The Risk Management Program includes plastics manufacturing facilities containing above a threshold amount of a listed substance.
- On April 9, 2024, the United States EPA announced a <u>final action</u> that will provide critical health protections to hundreds of thousands of people living near chemical plants. The action, signed March 28, 2024, will reduce emissions of hazardous air pollutants, including the toxic chemicals chloroprene and ethylene oxide (EtO). These regulations apply to a variety of types of equipment and processes that chemical plants use to make synthetic organic chemicals and polymers and resins, including neoprene. When fully implemented, the final rule will reduce more than 6,200 tons a year of over 100 air toxics—including EtO and chloroprene—from covered equipment and processes at plants in Texas and Louisiana, along with plants in other parts of the country, including Delaware, New Jersey, and the Ohio River Valley. As part of the final rule, the Agency is also issuing new emissions limits for dioxins and furans. In addition, the rule will also reduce more than 23,000 tons of smog-forming volatile organic compounds each year.



#### Solid Waste Management

- In April 2023, EPA released a draft National Strategy to Prevent Plastic Pollution, as mandated by Section 301 of the Save Our Seas 2.0 Act (2020). The Strategy identifies actions EPA and other domestic stakeholders can implement to eliminate the release of plastic waste into the environment by 2040. It builds upon EPA's <a href="National Recycling Strategy">National Recycling Strategy</a> and focuses on actions to reduce, reuse, collect, and capture plastic waste. With input from organizations, EPA identified three key objectives for the strategy: reduce pollution during plastic production, improve post-use materials management, prevent trash and micro/nanoplastic from entering waterways and remove escaped trash from the environment.
- The National Recycling Strategy is focused on enhancing and advancing the national municipal solid waste (MSW) recycling system and identifies strategic objectives and stakeholder-led actions to create a stronger, more resilient, and cost-effective domestic MSW recycling system. It is part one of a series dedicated to building a circular economy for all. The *Strategy* reflects the work of many stakeholders—including the public, companies, and non-governmental and community-based organizations—and input from other federal agencies, states, Tribes and local governments.
- EPA is developing a report on the nation's financial needs for recycling infrastructure. The financial needs assessment aims to estimate the investment needed to upgrade and modernize the United States recycling system and provide all residents with access to recycling services on par with access to trash disposal.
- The Waste Reduction Model (WARM) provides high-level estimates of potential greenhouse gas (GHG) emissions reductions, energy savings, and economic impacts from several different waste management practices. WARM estimates these impacts from baseline and alternative waste management practices—source reduction, recycling, anaerobic digestion, combustion, composting and landfilling. It is a tool to help solid waste planners and organizations track and voluntarily report GHG emissions, and is important for municipal leaders and waste-management entities.
- Stormwater permit program (under the Clean Water Act) released the EPA-authored "Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity" that requires facilities that handle pre-production plastic to implement control measures to reduce and eliminate discharges of plastic in stormwater.

#### Post-leakage Capture & Clean-up

- EPA's Trash Free Waters Program has provided technical and financial assistance to numerous <u>place-based trash capture projects</u> around the country as well as <u>hosting a webinar on how to develop and implement effective trash capture projects.</u>
- <u>Trash Free Waters Program</u> works to reduce the volume of trash entering waters by partnering with communities, state and local governments, Tribes, the private sector and others to implement solutions to land-based sources of trash. This program has a large number of place-based projects that work on capturing trash, source reduction, research, and public engagement. The program also led a project specifically <u>to assist local stormwater and solid waste programs</u> implement effective initiatives to address the trash-in-waterways issue.



- The Trash Free Waters program works with communities located inland along waterways and river systems in North America to promote public awareness about marine litter, deploy litter capture devices, collect data across, and reduce land-based marine litter.
- In 2023, the Trash Free Waters Program published, Where the Rubber Meets the Road: Opportunities to Address Tire Wear Particles in Waterways.

#### Research & Development

- EPA's United States <u>Environmentally-Extended Input-Output (USEEIO) Models</u> are environmental-economic models of United States goods and services, including plastic. USEEIO models can estimate the potential environmental and economic impacts associated with production or consumption of goods and services.
- EPA's additional research activities include:
  - Evaluating environmental sources of microplastic and stormwater management practices to prevent plastic from entering water bodies.
  - Evaluating environmental sources of microplastic and stormwater management practices to prevent plastic from entering water bodies.
  - o Collaborating with other agencies and external partners to develop standard reference materials needed for microplastic analyses.
  - Developing and standardizing collection, extraction, quantification, and identification methods for microplastic in aquatic matrices.
  - Evaluating potential adverse human health outcomes from exposure to microplastic and nanoplastic.
  - Evaluating ecological effects of exposure to plastic, including the tire antioxidant
     6-PPD and its degradation products 6-PPD-Quinone.
  - Identifying knowledge gaps and opportunities for plastic biodegradability standards.
  - Developing generic scenarios for end-of-life plastic management, specifically tracking chemical additive releases.
  - Characterizing plastic recycling processes and investigating the factors that influence sustainable plastic recycling systems.
  - Developing methods and tools to maximize the reuse of plastic and minimize disposal, including assessing alternatives to single-use plastic and plastic substitutes.
- EPA, in coordination with DOT, funded the National Academies of Sciences,
   Engineering, and Medicine report <u>Recycled Plastics in Infrastructure: Current Practices,</u>
   <u>Understanding, and Opportunities</u> (2023). This report was developed in response to Save Our Seas 2.0, Section 303.
- The Trash Free Waters Program published reports on <u>microplastics research gaps</u> and challenges to and opportunities for <u>addressing the issue of tire particles in waterways</u>.



- The Trash Free Waters Program worked with NOAA's Marine Debris Program on a Report on Microfiber Pollution, as mandated by Section 132 of the Save Our Seas 2.0 Act (2020). The Report includes a federal plan to reduce microfiber pollution.
- In 2021, EPA published research on plastic contamination in food waste, <u>Emerging</u> Issues in Food Waste Management: Plastic Contamination.
- In 2021, the Trash Free Waters Program published, <u>Trash Free Waters Report on Priority Microplastics Research Needs: Update to the 2017 Microplastics Expert Workshop.</u>
- EPA is a collaborating agency on <u>LCA Common</u>, a multiagency repository of standard life-cycle data and methods, including plastic.

#### Data Collection

- EPA will share data collected by state environmental agencies focused on solid waste generation, recycling, composting and food management, combustion of solid waste, and landfilling, where available. It builds on EPA's more than three decades of data to inform the public, governments, industry and others about the progress being made and areas where more work is needed.
- EPA will release a report summarizing the results from a survey on the types of data state environmental agencies collect beyond the minimum data collected pursuant to federal law. This information will inform the public, government agencies, private businesses and others about the types of information available on sustainable materials management and circular economy efforts.
- EPA's <u>Recycling Infrastructure and Market Opportunities Map</u> provides community-level data on recycling infrastructure, material tonnages, and recycling market development opportunities in a GIS format. It provides the public, government entities, investors, and others with nationwide information on recycling infrastructure and markets for several material categories, including plastic.
- EPA's Trash Free Waters Program is conducting a Data Collection and Modeling project to estimate the total amount of solid waste materials in US domestic waterways (not including coastal waters) by material type (including plastic) as well as estimates at the local watershed level. EPA released its 2023 Integrated Reporting and Listing Decisions Memorandum, which included language emphasizing the need for states to consider all available information when determining whether to list waterbodies as being impaired by trash including plastic waste. Examples of state trash assessment methods and data sources were included in the memorandum as a means of technical assistance.
- The Toxics Release Inventory (TRI) collects information annually about toxic chemical releases, management of chemicals in waste, and pollution prevention activities reported by industrial and federal facilities. Data reported provide stakeholders with information on industrial waste management associated with the production of polymers, resins, and plastic products.

#### International Efforts

• EPA, along with State, actively participates in the Organization for Economic Cooperation and Development's (OECD) Expert Group on Plastics, which focuses on the design of sustainable plastic from a chemical perspective. Past work has focused on



- creating guidance for the material selection phase of plastic product design and characterizing the technical, economic, and regulatory barriers to sustainable plastic design. EPA also participates in the OECD's Working Party on Manufactured Nanomaterials, which includes testing nanomaterials such as nanoplastic.
- EPA, along with State, has contributed substantially to discussions under the Stockholm Convention on Persistent Organic Pollutants related to the long-range environmental transport of persistent organic pollutants (POPs). The United States Government is advocating for a full scientific dialogue on the transport of POPs via plastic, in order to allow for fully informed decision-making by the Parties to the Convention. EPA, along with State, actively participates in Basel Convention on the Control of Transboundary Movements of Hazardous Wastes meetings as a non-Party in an effort to contribute to discussions related to plastic, including technical guidelines on environmentally sound management of plastic that were adopted in May 2023.

#### Environmental Justice & Equity

• EPA's environmental justice grants and technical assistance program offers a variety of opportunities and support for projects that address disproportionate environmental and public health impacts on communities with environmental justice concerns, including, but not limited to, a focus on different elements of reducing plastic pollution. EPA's environmental justice grants and technical assistance primarily provide support for community-based organizations working on related challenges, but also provide significant support for state, territorial, Tribal, and local governments and academic institutions working in partnership with communities with environmental justice concerns. Relevant activities eligible for support through these programs range from identifying, measuring, monitoring, and sampling for contamination from plastic pollution, remediation of such contamination, or working through collaborative partnerships with governmental, community, academic, and/or industry partners on projects to reduce or eliminate plastic production from any stage throughout the plastic production, use, and disposal lifecycle.

#### **Education & Outreach**

- Trash Free Waters Program has produced several technical resources for stakeholders, including Trash Stormwater Permit Compendium; Reducing Aquatic Trash Through Stormwater and Solid Waste Management; Escaped Trash Assessment Protocol; Microplastics Beach Protocol; Report on Priority Microplastics Research Needs; and Aquatic Trash Prevention National Great Practices Compendium.
- EPA developed various tools for communities to address solid waste management, including plastic. The Solid Waste Management Toolkit for Developing Countries includes a Guide, online learning modules and videos to help state and local governments and others involved in solid waste management. The Trash Free Waters International Implementation Guide gives step-by-step guidance on a stakeholder-based approach to identifying and prioritizing the most immediate challenges and developing actionable solutions to addressing them.
- The Recycling Education and Outreach (REO) Grant Program will provide \$30 million in funding for projects to improve consumer education and outreach on waste prevention, reuse, recycling, and composting. These education and outreach grants to states, Tribes,



territories, local governments, and other organizations aim to reduce waste generation, decrease contamination in the recycling stream, and increase recycling rates across the country in a manner that is equitable for all.

- EPA's Pollution Prevention (P2) program launched a <u>public webinar series</u> focused on various P2 topics including sustainable purchasing and how to use EPA's Recommendations of Specifications Standards and Ecolabels to meet various sustainability goals, such as plastics reduction. Additionally, the series included two webinars focused on reusable food service ware.
- EPA produced a webinar series promoting the Trash Free Water Program's place-based projects, solutions to addressing marine litter, and the impacts of plastic in the environment. The program also issued articles on the impacts of plastic and trash and the Program's projects.

#### Funding Opportunities & Awards

- In 2023, EPA announced selectees to receive approximately \$140 million in grants under the Solid Waste Infrastructure for Recycling (SWIFR) Grant Program and \$30 million in grants under the REO Grant Program to reduce plastic pollution, build sustainable materials management systems and promote a circular economy. The SWIFR grant program issues grants to states, territories, Tribes, and local governments, to improve solid waste management systems and infrastructure, increase recycling and composting, and improve post-consumer materials management, including plastic. The REO grant program issues grants to states, territories, Tribes, non-profits, and public-private partnerships to improve education and outreach on recycling materials, including plastic. Another round of funding will be forthcoming.
- In 2023, EPA announced a new Pollution Prevention Grant: Environmental Justice
  Through Safer and more Sustainable Products. The purpose of the new grant program is
  to provide pollution prevention (P2) technical assistance to businesses (e.g., information,
  training, expert advice) in order to improve human health and the environment in
  disadvantaged communities by increasing the supply, demand and use of safer and more
  sustainable products, such as those that are certified by EPA's Safer Choice program, or
  those that conform to EPA's Recommendations for Specifications, Standards and
  Ecolabels for Federal Purchasing (Recommendations). A total of \$8 million in grants was
  available to states, state entities (colleges and universities recognized as instrumentalities
  of the state), the District of Columbia, the U.S. Virgin Islands, the Commonwealth of
  Puerto Rico, any territory or possession of the United States, and federally recognized
  Tribes and intertribal consortia. The recipients of the first round of funding for this grant
  program included several projects focused on increasing the use of safer and more
  sustainable food ware, including a project in Hilo, Hawai'i, to establish a safe, affordable,
  community-wide reusable food ware system.

# **Executive Office of the President—Office of Science and Technology Policy** (OSTP)

#### Research & Development

• The National Nanotechnology Initiative's Nanoplastics Interagency Interest Group (Nanoplastics IG), coordinated by the National Nanotechnology Coordination Office



(NNCO), started meeting in 2019 and currently has participation from 14 United States government agencies and offices. The group proposed the topic for the December 2021 <u>APEC Workshop on Nanoplastics in Marine Debris,</u> members served on the organizing committee, recruited speakers and moderated sessions, developed <u>a virtual field trip/lab tour video</u>, and helped to draft the <u>final report</u>. Nanoplastics IG members have participated in follow-on APEC workshops and continue to monitor ongoing APEC publications on the subject. IG leadership served on the organizing committee for the January 2020 <u>NASEM Workshop</u>, <u>Environmental Health Effects of Microplastics</u>.

- In spring 2023, the Nanoplastics IG hosted public webinars which provided an *Overview of United States Government Activities Addressing Micro- and Nanoplastics Issues*—

  Session One: Research Agencies (Slides) and Session Two: Regulatory Agencies and Collaborations, Including International (Slides). Additional public webinars are planned that will feature both intramural and extramural (United States Government-funded) researchers discussing their work on specific aspects of the micro-/nanoplastic issues, e.g., collection/characterization, exposure assessment, evaluating potential hazards to the environment or human health.
- The <u>National Science and Technology Council Sustainable Chemistry Report: Framing the Federal Landscape</u> is a strategic plan in development, expected Spring 2024.

#### International Efforts

- Nanoplastics IG members participated in the Global Summit on Regulatory Science (annual meeting of regulators from around the world) which has included a focus on micro-/nanoplastic since 2019, when this was the main theme of the Summit; subsequent conferences have included sessions or workshops on micro-/nanoplastic; the Nanoplastics IG chair and FDA play lead roles in organizing the conference; other IG members participate; FDA will host the 2024 conference this September in Little Rock, AR: 2019 final report | 2022 conference website | 2023 conference website | 2024 conference website.
- NIST and the European Union's Joint Research Centre (JRC) have been collaborating on micro- and nanoplastic since 2019. They held a workshop in April 2021 on nanoplastic. This led to JRC and NIST signing an MOU to collaborate, including on nanoplastic. Both NIST and JRC have significant nanotoxicology capabilities that are helping to understanding potential human health implications of nanoplastic pollution, e.g., addressing not just the plastic particles but the chemicals bound to them. They are also collaborating on the development of micro- and nanoplastic test and reference materials, working with ASTM.
- Members of the Nanoplastics IG participate in the United States-European Union nanoEHS Communities of Research (CORs) which have annual workshops alternately hosted by the United States and European Union. On Nov. 16-17, 2023, the Annual United States/European Union NanoEHS CORs Workshop was hosted by the NNCO in Washington, DC. A major focus of the workshop was on micro-/nanoplastic intersections with all seven of the CORs—Characterization, Databases and Computational Modeling, Ecotoxicity, Human Toxicity, Exposure, Risk Assessment, Risk Management and Control—as well as an interactive exercise to develop a cross-disciplinary nanoplastic research agenda.



# **Executive Office of the President—Office of the United States Trade Representative (USTR)**

#### International Efforts

- USTR seeks to achieve environmental protection and conservation objectives, including ensuring that trade and environmental policies are mutually supportive and that trading partners do not weaken or reduce protections afforded in domestic environmental laws in order to encourage trade or investment, and requiring effective enforcement of environmental laws. Additionally, as applicable, USTR seeks commitments in trade agreements and other frameworks that specifically address the issue of marine litter and plastic pollution (2024 Trade Policy Agenda).
- USTR regularly engages on matters relevant to trade and environment, including at the
  World Trade Organization (WTO), APEC, and the Organization for Economic
  Cooperation and Development, among others. In 2023, the United States joined the WTO
  Dialogue on Plastics Pollution and Environmentally Sustainable Plastics
  Trade. USTR also coordinated multiple activities related to plastic pollution, including a
  thematic session on cooperation regarding plastic regulations and trade at the
  WTO's Committee on Technical Barriers to Trade, and a workshop on Promoting
  Compostable Bioplastics in the Asia Pacific region under APEC's Committee on Trade
  and Investment.

#### **General Services Administration (GSA)**

#### **Procurement & Sustainability**

• GSA issued a <u>final rule</u> to address acquisition and single-use plastic used in packaging. The anticipated future regulatory change is for the GSA Acquisition Regulations (GSAR) is GSA's supplement to the Federal Acquisition Regulation with the intent to encourage the Federal Supply Schedule contractors to reduce plastic packaging.

### **National Aeronautics and Space Administration (NASA)**

#### **Procurement & Sustainability**

NASA, the United States' premier space agency, is not only dedicated to advancing space
exploration but also to promoting sustainability and responsible procurement practices.
This commitment is evident through the agency's well-established sustainability team,
which comprises members from various departments including environmental, facilities,
and procurement, both at NASA Headquarters and all NASA Centers across the
country.

#### Solid Waste Management

• NASA has instituted comprehensive recycling programs across all of its Centers, effectively diverting waste away from landfills and significantly diminishing environmental impact. These initiatives encompass a wide range of materials including paper, plastic, metals, and electronics. NASA's strategy is to continue to advance waste prevention practices that save natural resources, reduce pollution, reduce waste toxicity, and save money. These practices have already resulted in a diversion rate exceeding 75.92% for the past five years.



#### **Data Collection**

- NASA's Earth Science Division missions help us to understand our planet's interconnected systems, from a global scale down to minute processes. Researchers at the University of Michigan have utilized data from eight microsatellites that are part of NASA's Cyclone Global Navigation Satellite System (CYGNSS) mission to map the concentration of ocean microplastics across the world using satellite data. This research is the first to map ocean microplastic over such a large area and is the first to map concentrations at a high temporal resolution, revealing seasonal variations in microplastic concentrations.
- NASA Earth Science: Researchers at the University of Michigan have utilized data from eight microsatellites that are part of NASA's CYGNSS mission to map the concentration of ocean microplastic across the world using satellite data.

#### Environmental Justice & Equity

• NASA supports an extensive network of satellites and observation systems that collect comprehensive data about the atmosphere, ocean, land, and life. The Agency is working to ensure that NASA observation systems and research are being leveraged to help communities across the U.S. make informed decisions about environmental challenges. This includes building new partnerships to support community outreach, training, and information and tools that use Earth observations to empower communities.

#### **National Science Foundation (NSF)**

#### Research & Development

- NSF supports research, research infrastructure, and education and workforce development across all STEM fields. Proposals are submitted through programs, solicitations, Broad Agency Announcements, and fellowship programs. The programs support unsolicited, investigator-driven research projects, and solicitations and Broad Agency Announcements are issued to encourage proposals on targeted topics. Some of the projects will develop fundamental knowledge and engineering advances pertaining to plastic pollution and prevention. Topics include, but are not limited to:
  - o basic research on the chemistry, physics, and material properties of plastic, microand nano-plastic, and microfibers;
  - design of benign, sustainable, and biodegradable alternative materials and additives to mitigate plastic pollution and minimize adverse environmental impacts;
  - o understanding the scope of plastic pollution, including sources, fate, and transport in the environment;
  - development of processes, materials, and systems for plastic pollution control and environmental remediation; and describing the interactions and effects of plastic pollution on ecosystems and biological organisms, excluding humans.

#### **International Efforts**

• NSF's Office of International Science and Engineering facilitates international research collaborations through appropriate proposal-based funding mechanisms. For example, the NSF Convergence Accelerator Track I supported use-inspired solutions focused on



advancing fundamental materials science, including materials design and manufacturing processes; circular design to create environmentally and economically sustainable materials and products; and training methods to prepare the current and future workforce. The Office of International Science and Engineering enabled research collaborations between U.S.-funded and Australian investigators tackling these sustainable materials challenges.

#### **Education & Outreach**

 NSF expanded on-site efforts to spread awareness about the benefits and opportunities to reduce plastic pollution. Increased communication will occur through additional signage placed throughout the building and outreach campaigns via more frequent newsletter distributions. In addition to research grants, NSF Directorates and Offices supported workforce development and education through proposal-based mechanisms. For example, the Directorate for STEM Education has made investments relevant to plastic pollution through the Advanced Technological Education program (PD 21-598).

#### Funding Opportunities & Awards

- NSF fulfills its mission chiefly by issuing limited-term grants to fund specific research
  proposals that have been judged the most promising by a rigorous and objective meritreview system. Innovative and meritorious research, research infrastructure, and
  workforce development proposals related to plastic pollution may be supported through
  various defined funding opportunities. Examples of recent funding opportunities
  include:
  - The Convergence Accelerator program invested \$11.5 million to fund 16 multidisciplinary convergent research teams under the program's Track I: Sustainable Materials for Global Challenges. Track I use-inspired solutions focused on advancing fundamental materials science, including materials design and manufacturing processes; circular design to create environmentally and economically sustainable materials and products; and training methods to prepare the current and future workforce.
  - O The Critical Aspects of Sustainability (PD 21-9102) meta-program also supported relevant research in this area. Notably, the Critical Aspects of Sustainability program issued a 2020 Dear Colleague Letter (DCL) (NSF 20-050) that called for proposal submissions that "tackle some of the fundamental scientific questions underlying micro- and nanoplastic characterization, behavior, and reactivity in the environment (including animal and human health), as well as their elimination from land and water systems." Awards were made by four of the five participating NSF Directorates in response to this DCL.
  - NSF issued a DCL: Critical Aspects of Sustainability (CAS): Innovative Solutions to Sustainable Chemistry (CAS-SC, NSF 22-111) that called for submissions of innovative ideas related to sustainable chemistry. It included an important element on developing alternative materials and processes for sustainable polymers as well as routes to minimize the production or enhance remediation of plastic waste. Proposals in response to this funding call are currently under review.
  - Projects that address plastic pollution have also been supported through the Engineering Directorate's Emerging Frontiers in Research and



- Innovation program solicitation on Engineering the Elimination of End-of-Life Plastics (NSF 19-599 and NSF 20-614).
- Investments in research infrastructure in support of foundational plastic pollution research have been made through the Major Research Instrumentation program (<u>PD 18-513</u>) and through supplemental awards, among other mechanisms.



# **Appendix B: United States Federal Interagency Working Groups**

Below is a list of interagency working groups collaborating and coordinating their work to address plastic across its lifecycle.

- CDC's NCEH & ATSDR's Microplastics and Human Health Working Group
- CEQ's and Climate Policy Office Interagency Policy Committee on Plastic Pollution and a Circular Economy
- DOD's Combined Services Integrated Solid Waste Working Group
- DOD's Sustainability Working Group
- DOE's Plastics Working Group
- DOI's Sustainable Acquisition and Materials Management Workgroup
- The Interagency Marine Debris Coordinating Committee chaired by NOAA
- OSTP's Interagency Nanoplastics Interest Group
- OSTP's National Science and Technology Council (NSTC)
- OSTP's Nanoscale Science, Engineering, and Technology (NSET) Subcommittee
- OSTP's Nanotechnology Environmental and Health Implications (NEHI) Working Group
- USDA's Interagency Sustainable Acquisition and Materials Management Working Group (SAMM)



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