

Marine Debris Projects Recommended for NOAA Funding under the Bipartisan Infrastructure Law: National Competition

*Projects selected through the National Sea Grant Infrastructure Investment and Jobs Act (IIJA)
Marine Debris Challenge Competition Notice of Federal Funding Opportunity*

Alaska

Distributed Mobile Upcycling

Recipient: Alaska Sea Grant, Project Lead: Patrick Simpson (PKS Consulting, Inc.)

Federal Funding: \$639,737 (Inflation Reduction Act)

Summary: The Alaska Sea Grant will be awarded \$639,737 to develop a distributed mobile plastic recycling system that can feasibly convert Plastic Ocean Waste and Ocean Bound Plastic into Recycled Plastic Lumber in multiple communities each year. This project aims to build greater community engagement through creating projects locally, reduce landfill usage, increase local jobs in Alaska, and decrease environmental impact from plastics.

California

Commercially Scalable End-Of-Life Solutions for Agriculture Field Plastic Films Used in Watersheds Draining to National Marine Sanctuaries

Recipient: California Sea Grant, Project Lead: Theresa Talley (California Sea Grant)

Federal Funding: \$2,732,838 (Bipartisan Infrastructure Law)

Summary: The California Sea Grant will be awarded \$2,732,838 to collaborate with a talented cross-sector team from agriculture, engineering, recycling and marine sanctuaries to develop technologies and best management practices that will maximize the removal of polyethylene mulch film from agricultural fields and make it an attractive feedstock for recyclers. This project aims to involve historically excluded communities in California in creating innovative solutions to address plastic pollution and marine debris resulting in a collaborative effort to transform growing techniques and processes that work with industry to prevent marine debris from entering the Monterey Bay National Marine Sanctuary, Channel Islands National Marine Sanctuary, and the proposed Chumash Heritage National Marine Sanctuary.

Clean Streets, Clean Seas: Innovating Public Works to Intercept Microplastics in Urban Runoff

Recipient: University of Southern California Sea Grant, Project Lead: Jill Murray (City of Santa Barbara)

Federal Funding: \$1,263,302 (Inflation Reduction Act)

Summary: The University of Southern California Sea Grant and the City of Santa Barbara will be awarded \$1,263,302 to provide the first measured and reported results on the impacts of street sweeping and trash capture devices on microplastics marine debris in stormwater runoff, which transports the bulk of terrestrial microplastic to the sea. The project aims to intercept microplastic between deposition on street surfaces and discharge into the ocean and engage

interested groups through outreach to maximize impact and innovation of research approach and findings. The work will be carried out in collaboration with a number of California municipalities, research institutions, and street sweeping industry experts.

Hawai'i

Development of New Detecting, Cutting and Lifting Technologies to Increase Efficiency of Derelict Fishing Gear Removal

Recipient: Hawai'i Sea Grant, Project Lead: Darren Lerner (Hawai'i Sea Grant)

Federal Funding: \$1,830,345 (Bipartisan Infrastructure Law)

Summary: The Hawai'i Sea Grant will be awarded \$1,830,345 to utilize unmanned aerial vehicles and test commercially available electric diver propulsion vehicles to determine the effectiveness of identifying and geo-locating large derelict fishing gear in Hawai'i's shallow waters and reduce the survey time. This project aims to develop innovative solutions for the mitigation and clean-up of derelict fishing gear in the Papahānaumokuākea Marine National Monument that, when scaled up, have the potential to positively impact derelict fishing gear removal efficiency worldwide.

Nets to Roads: Innovative Research to Scale-up Removal and Repurposing of Derelict Fishing Gear

Recipient: Hawai'i Sea Grant, Project Lead: Darren Lerner (Hawai'i Sea Grant)

Federal Funding: \$2,990,627 (Bipartisan Infrastructure Law)

Summary: The Hawai'i Sea Grant will be awarded \$2,990,627 to accelerate the removal of large plastic marine debris across the entire Hawaiian archipelago and recycle it into public infrastructure. The team will build and test an oceanographic model to forecast the arrival of large marine debris in nearshore waters of Hawai'i to enable rapid at-sea removals, then create a centralized, relational database that captures critical information about each distinct large marine debris item at multiple stages. This project aims to contribute to a circular economy in which 40 tons of ocean plastics are recycled into public asphalt roads annually in the state of Hawai'i.

Maine

Reducing Marine Debris at the Source: Material Replacement and Source Reduction for Single-Use Food Packaging

Recipient: Maine Sea Grant, Project Lead: Douglas Bousfield (University of Maine)

Federal Funding: \$2,997,876 (Bipartisan Infrastructure Law)

Summary: The Maine Sea Grant will be awarded \$2,997,876 to lower the barriers for companies to enter the sustainable packaging market and understand slow resource loops that help reduce the inflow of plastics to the ocean. This project aims to reduce the burden of marine debris on human communities and coastal ecosystems in Maine and throughout the Gulf of Maine where the impacts of marine debris are disproportionately borne by small, rural coastal and island communities with limited capacity to support increasingly costly solid waste management systems and conservation planning initiatives.

Mississippi and Alabama

Understanding, Mitigation and Prevention of Waste Plastic Marine Debris in the Gulf Coast

Recipient: Mississippi-Alabama Sea Grant Consortium, Project Lead: Shenghua Wu (University of South Alabama)

Federal Funding: \$1,910,628 (Inflation Reduction Act)

Summary: The Mississippi-Alabama Sea Grant will be awarded \$1,910,628 to develop techniques and tools to help mitigate and prevent the presence of microplastics in the Gulf of Mexico through leveraging resources in three states along the Gulf Coast, including 10 wastewater treatment facilities in Mississippi, Alabama, and Florida. The project aims to improve microplastic understanding, develop microplastic reduction techniques, measure microplastic concentration, and enhance collaboration around addressing microplastics in Gulf Coast communities, specifically urban communities, communities that are predominantly Black, and rural, isolated communities.

New York

Aquatic Microplastic Filtration Device Research and Pilot Deployment

Recipient: New York Sea Grant, Project Lead: Nathaniel Banks (PolyGone Systems)

Federal Funding: \$1,973,817 (Inflation Reduction Act)

Summary: The New York Sea Grant will be awarded \$1,973,817 to develop riverine infrastructure for the removal of aquatic microplastic debris from a variety of effluents and polluted tributaries within the Hudson River Watershed in New York. This project not only aims to raise broader awareness of the extent of microplastic pollution in the Hudson Watershed but also give underrepresented communities agency in developing and refining microplastic remediation strategies.

Developing Sustainable and Closed-Loop Solutions to Reduce Synthetic Fibers, Microplastics, and Nanoplastics Leakage from Laundry Systems into the Marine Environment

Recipient: New York Sea Grant, Project Lead: Beizhan Yan (Columbia University)

Federal Funding: \$2,990,620 (Bipartisan Infrastructure Law)

Summary: The New York Sea Grant will be awarded \$2,990,620 to plug the leak of microplastics and nanoplastics (< 1 μ m) into our marine environments from domestic and commercial laundries by developing closed-loop solutions that utilize advanced ultrafiltration techniques and novel methods for reusing the filtered materials. This project aims to make this new plastic removal technology available for all communities, including traditionally underserved communities, and create easily-accessible outreach materials and curricula for communities, schools and teachers regionally and nationally. Outreach materials will be used by Sea Grant extension educators throughout New York and North Carolina.

South Carolina

From Blue-Gray to Blue-Green: Facilitating the Transition to Non-Plastic Natural Material Use Within the Coastal Zone Economy

Recipient: South Carolina Sea Grant Consortium, Project Lead: William Strosnider (Baruch Marine Field Laboratory)

Federal Funding: \$2,619,856 (Bipartisan Infrastructure Law)

Summary: The South Carolina Sea Grant Consortium will be awarded \$2,619,856 to catalyze the replacement of plastics with natural materials in South Carolina and the Southeast United States, including those used in coastal restoration, water quality protection and aquaculture initiatives, via testing from lab to mesocosm to field pilot scales, leveraging regional partnerships and community linkages for maximum impact. This project aims to strengthen connections between displaced/disenfranchised African American communities and coastal environmental sectors, enhance Historically Black Colleges and Universities' research and educational capacity, inform K-12 student regarding plastics pollution prevention in South Carolina, and develop the next generation of cutting-edge environmental professionals.