



# Long Island Sound Marine Debris Action Plan

May 2022

Photo: Judy Preston, Connecticut Sea Grant

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Photo: Judy Benson, Connecticut Sea Grant

# Table of Contents

<b>Introduction .....</b>	<b>6</b>
<b>Action Plan Purpose .....</b>	<b>6</b>
<b>Action Plan Structure .....</b>	<b>7</b>
<b>Action Plan Implementation and Monitoring .....</b>	<b>8</b>
<b>Goal 1: Understand, Prevent and Mitigate the Impacts of Single-Use Plastic and Other Water/Land-based Consumer Debris .....</b>	<b>10</b>
<b>Goal 2: Understand, Prevent and Mitigate the Impacts of Abandoned and Lost Fishing/Aquaculture Gear .....</b>	<b>19</b>
<b>Goal 3: Understand, Prevent and Mitigate the Impacts of Microplastics and Microfibers .....</b>	<b>25</b>
<b>Appendix A: Partner Organizations .....</b>	<b>30</b>
<b>Appendix B: Action Plan Metrics .....</b>	<b>32</b>



*Photo: Judy Benson, Connecticut Sea Grant*

# Introduction

The National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program defines marine debris as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes. Sources of marine debris are both land-based and water-based, including debris from vessels (dumped/swept/blown), littering (intentional/unintentional), dumping in rivers and streams, storm water discharge, imperfect waste management practices and abandoned, lost or derelict fishing/aquaculture gear. A global as well as a local issue, marine debris adversely affects coastal and marine habitats and organisms, causes economic losses to key coastal interests and activities, including tourism, facilitates the movement of marine invasive species and damages vessels.

Long Island Sound is an estuary bounded by Connecticut to the north and Long Island, New York to its south, with a coastline stretching more than 600 miles. Known as the “Urban Sea,” Long Island Sound is a prominent feature in one of the most densely populated areas of the U.S., with nearly nine million people living in the watershed. It is an atypical estuary with two openings to the sea, at its western (Hell Gate to the East River) and eastern (the Race to Block Island Sound) boundaries and is oriented parallel to the coast.

Management of this shared waterbody is jointly administered by the states of Connecticut and New York. In 1985, the U.S. Environmental Protection Agency (EPA) and the states of New York and Connecticut formed the bi-state cooperative partnership known as the Long Island Sound Study (LISS). Federal and state agencies, academic institutions and representatives of the LISS Citizens Advisory Committee (CAC), which includes user groups, concerned organizations and individuals dedicated to restoring and protecting the Sound, comprise the LISS Management Conference. Congress subsequently designated the Long Island Sound as an estuary of national significance in 1987, one of 28 National Estuary Programs funded under Section 320 of the Clean Water Act. On January 14, 2022, NOAA officially designated the Connecticut National Estuarine Research Reserve (NERR) as the nation’s 30th NERR, adding it to the network of coastal areas designated to protect and study estuarine systems.

In 2015, the LISS updated its Comprehensive Conservation and Management Plan (CCMP) to protect and restore Long Island Sound, focusing on the themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities and Sound Science and Inclusive Management. The goal for Clean Waters and Healthy Watersheds is to “improve water quality through the reduction of contaminant and nutrient loads from the land and the waters impacting Long Island Sound.” A key strategy is to “reduce generation of marine debris and improve and increase its cleanup in Long Island Sound waters.”

## Action Plan Purpose

While there were already many organizations, agencies and individuals addressing marine debris in Long Island Sound, this plan represents the culmination of numerous discussions among these interested parties to develop a comprehensive framework of strategic actions to mitigate the impacts of marine debris over the next five years (2022-2027). Associated tracking and monitoring will enable all involved to assess collective progress towards achieving the identified goals.

A bi-state marine debris planning team, led by the Connecticut and New York Sea Grant programs under the guidance of the NOAA Marine Debris Program Northeast and Mid-Atlantic regional coordinators, met regularly over a 24-month period to coordinate the development of the Long Island Sound Marine Debris Action Plan (Action Plan). Vision and mission statements for the Action Plan were developed and numerous stakeholders were engaged through topically focused work groups, one-on-one calls, emails and virtual meetings. Several opportunities were provided for verbal and written partner feedback to prioritize and finalize the actions.

# Action Plan Purpose (cont.)

## Vision

Long Island Sound, its coasts, watersheds, people and wildlife are free from marine debris and its impacts.

## Mission

To reduce the impacts of marine debris in Long Island Sound by communicating the problem, undertaking preventative and mitigating actions and collaborating on solutions.

## Timeline

May 2022 - April 2027

# Action Plan Structure

The Action Plan is structured by marine debris goals, strategies and actions. The sections below comprise the core of the Action Plan, outlining specific actions, leads and partners under each goal and strategy that contribute to achieving the stated vision and mission.

## Goals

In the context of this Action Plan, goals are priorities identified and outlined by the relevant marine debris community.

## Strategies

In the context of this Action Plan, strategies are cross-cutting methods for achieving goals. Strategies are largely shared across debris types and goals and used to facilitate sharing of best practices.

## Actions

In the context of this Action Plan, actions are discrete projects/activities undertaken by leads and partners to address specific strategies. Actions may be one-time or ongoing efforts over the course of the Action Plan. Actions which currently do not have leads or partners have been included in the hope that they may find a champion over the course of the five-year plan.

## Leads and Partners

In this Action Plan, leads and partners are entities who have volunteered to carry out a specific action, pending the availability of resources and capacity (e.g., funding, staff, time and materials). Leads are responsible for coordinating reports on the progress, challenges and completion of actions. Partners are responsible for undertaking and supporting activities that fulfill the actions and providing input on progress and completion. Participating organizations are listed in Appendix A.

# Action Plan Implementation and Monitoring

The Long Island Sound marine debris community considers regular communication, capacity building, coordination and involvement of diverse stakeholders essential to successfully establishing and maintaining strategic partnerships to accomplish the Action Plan goals.

## Communicate

The Action Plan implementation will promote and utilize existing and new communication platforms to share best practices, case studies, curricula, outreach and educational resources and Long Island Sound-relevant research. These platforms will enable partners to communicate activities, share lessons learned and document work being done within the Long Island Sound watershed and estuary. These platforms include the [Connecticut](#) and [New York](#) Sea Grant websites, the [Northeast](#) and [Mid-Atlantic](#) Marine Debris Collaboration Portals and the [Long Island Sound Study](#) website.

## Build Capacity

The Action Plan implementation will include the identification and sharing of opportunities to develop and expand capacity among the Long Island Sound marine debris community, including short- and long-term dedicated funding sources and other resources for implementing the Action Plan actions and other marine debris activities. Additionally, opportunities to engage with diverse stakeholders and organizations to share information, resources and expertise to build future generations of marine debris practitioners and leaders will be identified and pursued.

## Coordinate

The Action Plan process will include partner-initiated meetings and webinars to highlight progress and identify opportunities for collaboration and implementation. These include the [Connecticut](#) and [New York](#) Sea Grant websites, the [Northeast](#) and [Mid-Atlantic](#) Marine Debris Collaboration Portals and the [Long Island Sound Study](#) website. Additionally, the Action Plan implementation will be integrated and aligned with the Mid-Atlantic Marine Debris Action Plan as appropriate.

## Environmental Justice

As part of a holistic approach to combating marine debris in the region, Action Plan partners are committed to seeking, listening to and involving voices from communities with environmental justice concerns. The core values of diversity, equity, inclusion, justice and accessibility will guide partner efforts. Action Plan partners will work with local environmental justice groups, including the LISS Environmental Justice Work Group, to increase collaboration with people and communities with diverse experiences and backgrounds. These efforts will foster innovative and creative ideas to reach the best possible solutions to prevent, reduce and mitigate the impacts of marine debris.

# Action Plan Implementation and Monitoring (cont.)

## Monitoring and Evaluation

The Connecticut and New York Sea Grant programs will facilitate the implementation of the Action Plan, monitor and report progress semi-annually as requested by the NOAA Marine Debris Program, update the Action Plan with input from all partners and stakeholders and promote information sharing and collaboration among members of the Long Island Sound marine debris community.

The Long Island Sound marine debris community recognizes that this Action Plan should be evaluated and revisited within the five-year time frame, as unforeseen opportunities, challenges or gaps may arise during implementation. A mid-plan review and evaluation will be performed to determine which strategies and actions are well-supported and achievable and which may require further assistance or course correction. Elements of the Action Plan may be revised or adapted and new actions may be added at this time. After five years, the Action Plan will undergo an evaluation and an accomplishments report will be generated. At this time, the Action Plan could be revised, updated and renewed for another period of time.



Photo: Judy Benson, Connecticut Sea Grant



# Goal 1: Understand, Prevent and Mitigate the Impacts of Single-Use Plastic and Other Water/Land-based Consumer Debris

**Overview of Strategies:** Create and promote outreach and education programs, advance research and innovative technologies, monitor impacts, provide access to responsible disposal pathways, remove consumer debris from coastal areas and waterways and engage policymakers and decision-makers to support sustained prevention and mitigation programs.

**Single-use plastic and other water/land-based consumer debris** consists of ubiquitous human-made materials. In the Long Island Sound region, common debris items include single-use bags and bottles, polystyrene cups, balloons, cigarettes, food containers, straws and hygiene and medical waste, as well as larger debris, such as tires, large appliances and other consumer products. Single-use plastic and consumer debris enter the marine environment through land-based pathways including intentional and accidental littering, stormwater or wastewater and mismanagement of solid waste, and through water-based sources such as illegal dumping.

*Photo: Judy Preston, Connecticut Sea Grant*

## **Strategy 1.1: Prevention, Education, and Outreach (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
1.1.1 Research and review existing communication/outreach materials, educational programs, activities and intervention products that are relevant to and could be replicated across the Long Island Sound region and make links to them available to partners through relevant portals.	<b>Connecticut Sea Grant; New York Marine Rescue Center; New York Sea Grant; NOAA Marine Debris Program</b>
1.1.2 Adapt existing or create new communication/outreach products on consumer debris and single-use plastic and disseminate to <b>urban</b> communities.	<b>Connecticut Sea Grant; Hudson River Foundation; Long Island Sound Study; New York City Dept. Environmental Protection (Public Affairs and Education Offices); New York Sea Grant; New York State Dept. Environmental Conservation; NOAA Marine Debris Program</b>

## Strategy 1.1: Prevention, Education, and Outreach (cont.)

Actions	Lead(s) and Partner(s)
1.1.3 Adapt existing or create new communication/outreach products on consumer debris and single-use plastic and disseminate to <b>inland</b> communities.	Connecticut Dept. Energy & Environmental Protection (Land & Water Resource Division); Connecticut River Conservancy; Connecticut Sea Grant; Long Island Sound Study; NOAA Marine Debris Program; New York Sea Grant
1.1.4 Adapt existing or create new communication/outreach products on consumer debris and single-use plastic and disseminate to <b>coastal</b> communities.	<b>Connecticut Dept. Energy &amp; Environmental Protection (Land &amp; Water Resource Division)</b> ; Coalition to Save Hempstead Harbor; Connecticut Sea Grant; Fishers Island Conservancy; Long Island Sound Study; Manhasset Bay Protection Committee; Mystic Aquarium; New York Sea Grant; New York State Dept. Environmental Conservation; NOAA Marine Debris Program
1.1.5 Adapt or create new and implement coordinated social media campaigns focused on the source reduction/prevention of consumer debris and single use plastic that are unified by one common message and shared by Action Plan leads and partners.	<b>Columbia University</b> ; American Littoral Society; Coalition to Save Hempstead Harbor; Connecticut Sea Grant; Long Island Sound Study Citizens Advisory Committee; Manhasset Bay Protection Committee; Mystic Aquarium; New York Sea Grant; Save the Sound
1.1.6 Engage Long Island Sound watershed residents in <b>meaningful interactions</b> * through outreach activities to promote source reduction of common consumer debris items, including single-use plastic, and encourage increased use of sustainable alternatives such as reusable items. <sup>1</sup>	<b>Columbia University</b> ; Coalition to Save Hempstead Harbor; Connecticut Sea Grant; Fishers Island Conservancy; Fisheries Island School; Long Island Sound Study; Mystic Aquarium; New York Sea Grant
1.1.7 Launch a pilot project employing the principles of Community Based Social Marketing that leads to the reduction of consumer debris through behavior change. (Crosscuts with 1.2.2)	<b>Columbia University</b> ; Connecticut Sea Grant; Manhasset Bay Protection Committee; Mystic Aquarium

<sup>1</sup>For purposes of this plan, a meaningful interaction is *an interaction with MDAP partners through outreach activities, counting only the number of people directly interacted with during an outreach or educational program*. Examples include having a conversation, leading a lesson, answering a question, playing a game, participating in an activity, etc. Does NOT include overall number of people at an event or programs who do not have some level of substantial involvement with MDAP partners.

## Strategy 1.1: Prevention, Education, and Outreach (cont.)

Actions	Lead(s) and Partner(s)
1.1.8 Host events that promote source reduction of common consumer debris items, including single-use plastic, and encourage increased use of sustainable alternatives such as reusable items.	<b>Columbia University; Connecticut Sea Grant; Mystic Aquarium; New York Sea Grant</b>
1.1.9 Review/share existing or develop new resources to inform policy related to consumer debris and disseminate to local municipalities and policymakers.	Connecticut Sea Grant; New York Sea Grant
1.1.10 Adapt/create and implement outreach campaigns to prevent the intentional release of balloons using strategies developed with local or regional partners. (Crosscuts with 1.2.2)	<b>Columbia University; American Littoral Society; Citizens Campaign for the Environment; Manhasset Bay Protection Committee; Save the Sound; U.S. Fish &amp; Wildlife Service; New York Sea Grant</b>
1.1.11 Adapt/create and disseminate educational resources about sustainable and waste-reducing initiatives that can be utilized by partner organizations to reduce consumer debris and single-use plastic in everyday operations and hosted events.	<b>Columbia University; Connecticut Sea Grant; Mystic Aquarium; New York Sea Grant; NOAA Marine Debris Program</b>
1.1.12 Inventory/analyze existing consumer debris education resources to determine what is available and appropriate for P-12 students.	Columbia University; North American Marine Environment Protection Association; Brookhaven National Lab's Day in the Life Program; Connecticut Dept. Energy & Environmental Protection; Connecticut Sea Grant; Long Island Sound Study Sound Stewards Program; Mystic Aquarium; New England Science & Sailing; New York Marine Rescue Center; New York Sea Grant; Project Oceanology; Southeastern New England Marine Educators

Photo: Judy Preston, Connecticut Sea Grant



## Strategy 1.1: Prevention, Education, and Outreach (cont.)

Actions	Lead(s) and Partner(s)
1.1.13 Adapt/create and disseminate educational materials focused on source reduction/prevention of consumer debris and single use plastic for P-12 students that align with Next Generation Science Standards where applicable, and that have been successfully demonstrated through online platforms, in-person events, educator workshops, after-school programs and visits, summer camps, campaigns and field trips to P-12 educators and Long Island Sound watershed students. (Crosscuts with 3.1.3)	<b>Columbia University; North American Marine Environment Protection Association; Brookhaven National Lab's Day in the Life Program; Connecticut Dept. Energy &amp; Environmental Protection; Connecticut Sea Grant; Long Island Sound Study Sound Stewards Program; Mystic Aquarium; New England Science &amp; Sailing; New York Marine Rescue Center; New York Sea Grant; Project Oceanology; Southeastern New England Marine Educators</b>
1.1.14 Share and promote, through established or new listservs and websites, professional development opportunities focused on single-use plastic and consumer marine debris reduction and education with high schools and universities across the Long Island Sound watershed region, especially targeting schools in communities with environmental justice concerns.	<b>Columbia University; Connecticut Sea Grant; University of Hartford</b>
1.1.15 Create/adapt and disseminate outreach materials to support campaigns promoting reduction of single-use plastic use by the food service, travel and tourism industries. (Crosscuts with 1.2.2)	<b>Columbia University; UConn-Avery Point EcoHusky Club</b>
1.1.16 Engage private sector partners in the food service, travel and tourism industries in conversations to implement single-use plastic reduction practices, understand barriers to implementation and share lessons learned with Long Island Sound watershed partners and the public.	

## Strategy 1.1: Prevention, Education, and Outreach (cont.)

Actions	Lead(s) and Partner(s)
1.1.17 Identify tools that prevent or reduce single-use plastic from entering the watershed, research existing/create new inventory of intervention products and highlight these resources on websites and in brochures.	Connecticut Sea Grant; Manhasset Bay Protection Committee
1.1.18 Create a guide of actions, including associated cost/benefit analyses, for organizations within the Long Island Sound watershed related to the reduction of consumer debris.	
1.1.19 Engage businesses which have adopted sustainable alternatives to single-use plastic to highlight case studies and share best practices.	Mystic Aquarium
1.1.20 Engage with restaurants and other food service industries to educate about certification programs and highlight those that participate.	
1.1.21 Partner with wholesalers to offer restaurants, hotels, shops, tourist attractions, schools, colleges, houses of worship and nature centers cost-effective rates for bulk reusable, recyclable, or compostable items.	
1.1.22 Review marine debris data reported to the Ocean Conservancy International Coastal Cleanup database and the University of Georgia Marine Debris Tracker annually to inform the Long Island Sound Study's Marine Debris Ecosystem Target(s) and highlight results.	<b>American Littoral Society; Save the Sound;</b> Connecticut Sea Grant; Long Island Sound Study Indicators Work Group; New York Sea Grant

## Strategy 1.1: Prevention, Education, and Outreach (cont.)

Actions	Lead(s) and Partner(s)
1.1.23 Conduct gap analysis of marine debris tracking data using state reports from International Coastal Cleanup database and other sources to document trends in marine debris collected throughout the Long Island Sound watershed. Identify at-risk areas most affected by marine debris and pollution, develop new partnerships and provide tools and resources to support and increase the number of clean ups held annually.	
1.1.24 Highlight and share links to NOAA Marine Debris Program resources on marine debris emergency preparedness for storm events and other natural disasters.	<b>Connecticut Sea Grant, New York Sea Grant; NOAA Marine Debris Program</b>

## Strategy 1.2: Research Assessment, Wildlife Impacts and Monitoring (cont.)

Actions	Lead(s) and Partner(s)
1.2.1 Compile existing consumer debris information and wildlife impacts annually and make them available to facilitate analysis of information gaps, best practices and available resources.	Atlantic Marine Conservation Society; Mystic Aquarium; New York Marine Rescue Center; NOAA Marine Debris Program; Save the Sound; U.S. Fish & Wildlife Service - Migratory Birds; NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division
1.2.2 Analyze the effectiveness of community-based social marketing techniques and behavior change consumer debris campaigns annually that are inclusive of the Long Island Sound watershed community and undertaken through Actions 1.1.7, 1.1.10 and 1.1.15.	<b>Connecticut Sea Grant, New York Sea Grant; NOAA Marine Debris Program</b>

## Strategy 1.2: Research Assessment, Wildlife Impacts and Monitoring (cont.)

Actions	Lead(s) and Partner(s)
<p>1.2.3 Seek/share grant opportunities to address Action Plan research priorities, including research:</p> <ul style="list-style-type: none"> <li>• that identifies and addresses knowledge gaps so that new consumer debris efforts can be launched that successfully support Actions 1.1.2-1.1.6</li> <li>• that improves understanding of the impacts of consumer debris on wildlife to inform public outreach campaigns and policymakers</li> <li>• that identifies more sustainable alternatives to recycling</li> <li>• that identifies and/or informs interception technology effectiveness or alternatives</li> <li>• that focuses on consumer debris to better inform decision-makers and raise public awareness</li> </ul>	Connecticut Sea Grant; Hudson River Foundation; Long Island Sound Study; National Geographic Explorers – New England hub; New York Sea Grant; NOAA Marine Debris Program; Yale University
<p>1.2.4 Promote support for surveys using standard metrics to identify sources and types of consumer debris collected in water</p>	
<p>1.2.5 Promote community science programs that collect data on marine debris to better inform decision-makers and raise public awareness.</p>	<b>Columbia University;</b> Atlantic Marine Conservation Society; Coalition to Save Hempstead Harbor; Manhasset Bay Protection Committee; Mystic Aquarium; NOAA Marine Debris Program; New York Sea Grant
<p>1.2.6 Survey local and state policies and management plans aimed at source reduction, prevention and interception practices using available data and information. This will inform Action 1.5.2.</p>	

### Strategy 1.3: Proper Disposal and Infrastructure

Actions	Lead(s) and Partner(s)
1.3.1 Support the development and installation of interception technologies, tools, receptacle bins and capture devices that support data collection and monitoring across the Long Island Sound watershed.	Hudson River Foundation; Manhasset Bay Protection Committee; Save the Sound
1.3.2 Support the installation, maintenance and proper use of cigarette disposal receptacles in communities, parks and beaches (in collaboration with smoke-free beach resolutions as appropriate) to limit butts entering the environment.	Coalition to Save Hempstead Harbor; NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division
1.3.3 Facilitate/support other removal actions (e.g., signage, recycling bins) at the local level that divert debris from entering Long Island Sound and its watershed.	Coalition to Save Hempstead Harbor; Hudson River Foundation; Mystic Aquarium; Relic Sustainability
1.3.4 Engage with marinas to support the installation, maintenance and proper use of disposal bins for boaters.	Connecticut Marine Trades Association; Coalition to Save Hempstead Harbor; Manhasset Bay Protection Committee
1.3.5 Acquire and distribute mesh trash bags for commercial and charter fishing vessels.	Connecticut Sea Grant; Remote Ecologist Inc.
1.3.6 Engage managers of state and municipal public parks and beaches with concession stands in pilot programs to reduce use of single-use plastic products and promote as 'eco-friendly' or 'don't trash the beach' locations.	Coalition to Save Hempstead Harbor
1.3.7 Identify and share opportunities for vessel shrink wrap recycling with Long Island Sound residents.	Connecticut Marine Trades Association; Mystic Aquarium; New York Sea Grant

#### Strategy 1.4: Removal

Actions	Lead(s) and Partner(s)
1.4.1 Collectively support and coordinate annual cleanup events around land-based litter.	<b>American Littoral Society; Save the Sound; Atlantic Marine Conservation Society; Coalition to Save Hempstead Harbor; Connecticut Sea Grant; Fishers Island Conservancy; Friends of Hammonassett Beach State Park; Manhasset Bay Protection Committee; Mystic Aquarium; New York Sea Grant; UConn-Avery Point EcoHusky Club; University of Hartford</b>

#### Strategy 1.5: Policy and Management

Actions	Lead(s) and Partner(s)
1.5.1 Engage local, county, state, and/or federal elected officials and policymakers to improve awareness of consumer debris policies and advocacy campaigns.	Brandeis University - ENACT; Citizens Campaign for the Environment; Coalition to Save Hempstead Harbor; Long Island Sound Congressional Caucus; Long Island Sound Study Citizens Advisory Committee; University of Hartford
1.5.2 Inform, advocate and/or implement new local, municipal and state policies, management plans and/or campaigns aimed at source reduction (e.g., balloons, single-use plastic straws, single-use utensils, nip bottles), prevention and/or interception practices, informed by available marine debris collection data. (Crosscuts with 1.1.22)	Citizens Campaign for the Environment; Connecticut Dept. Energy & Environmental Protection – Land & Water Resource Division; Long Island Sound Study Citizens Advisory Committee
1.5.3 Develop a listserv for organizations that are interested in legislative opportunities that could benefit from additional information on consumer debris.	Citizens Campaign for the Environment; Long Island Sound Study Citizens Advisory Committee

Photo: Judy Benson, Connecticut Sea Grant





## Goal 2: Understand, Prevent and Mitigate the Impacts of Abandoned and Lost Fishing/Aquaculture Gear

**Overview of Strategies:** Create and promote outreach programs, advance research and innovative technologies, investigate alternative materials and gear modifications, provide access to responsible disposal pathways, remove abandoned/lost gear from coastal areas and waterways and engage regional and state government bodies, stakeholders from commercial and recreational fishing and aquaculture industries, policymakers and decision-makers to support sustained programs and provide funding to mitigate abandoned and lost fishing gear.

**Abandoned and Lost Fishing/Aquaculture Gear** refers to nets, monofilament or braided lines, crab pots, lobster traps, aquaculture equipment, and other recreational or commercial fishing/aquaculture equipment that has been lost, abandoned, or discarded in the marine or coastal environment. Modern gear is generally made of synthetic materials and metal, and it can persist for a very long time. Lost and abandoned gear also can contribute to the issue of ghost fishing, trapping and killing both target species and non-target bycatch.

*Photo: Scott Curatolo-Wagemann; Cornell Cooperative Extension*

### Strategy 2.1: Prevention, Education and Outreach (cont.)

Actions	Lead(s) and Partner(s)
2.1.1 Inventory existing best management practices to prevent or reduce abandoned and lost fishing/aquaculture gear and consider modifications for Long Island Sound in collaboration with fishing and aquaculture industries.	Connecticut Sea Grant; Remote Ecologist Inc.
2.1.2 Identify and share methods to properly dispose of end-of-life fishing/aquaculture gear.	Connecticut Sea Grant; NOAA Marine Debris Program; Remote Ecologist Inc.

## Strategy 2.1: Prevention, Education and Outreach (cont.)

Actions	Lead(s) and Partner(s)
2.1.3 Develop a campaign to identify and engage new partners in abandoned and lost fishing/aquaculture gear prevention programs.	Connecticut Dept. Agriculture-Bureau of Aquaculture; Connecticut Dept. Energy & Environmental Protection – Marine Fisheries; New York Sea Grant
2.1.4 Engage with fishing and aquaculture businesses across the Sound to better understand debris issues, storm preparedness and information gaps.	Connecticut Dept. Agriculture-Bureau of Aquaculture; Connecticut Dept. Energy & Environmental Protection – Marine Fisheries; Connecticut Sea Grant; New York Sea Grant
2.1.5 Assist fishing and aquaculture businesses in finding cost-effective alternatives for plastic or disposable materials.	
2.1.6 Share gear innovation funding opportunities broadly with relevant stakeholders (e.g., recreational and commercial fishing and aquaculture industries, academic and non-profit researchers and any interested party).	Connecticut Dept. Energy & Environmental Protection – Marine Fisheries; Connecticut Sea Grant; New York Sea Grant; New York State Dept. Environmental Conservation; NOAA Marine Debris Program
2.1.7 Share the advancement of successful gear innovations broadly with relevant stakeholders (e.g., recreational and commercial fishing and aquaculture industries and any interested party).	Connecticut Sea Grant; New York Sea Grant
2.1.8 Integrate marine debris issues into recreational fisheries action plans.	American Littoral Society; Connecticut Dept. Energy & Environmental Protection – Marine Fisheries, Wildlife Division; NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division
2.1.9 Promote/share outreach products at targeted events (boat shows, trade shows, fishing expos, fishing shops) to engage the public, commercial and recreational fishing and boating communities in abandoned and lost fishing gear prevention.	Connecticut Dept. Energy & Environmental Protection; New York Sea Grant; New York State Dept. Environmental Conservation; NOAA Marine Debris Program

## **Strategy 2.1: Prevention, Education and Outreach (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
2.1.10 Support translation of outreach products, signage and/or digital campaigns to non-English languages identified by the community	Connecticut Dept. Energy & Environmental Protection – Fisheries; New York State Dept. Environmental Conservation
2.1.11 Create a one-pager for the recreational boating community regarding the presence of gear in Long Island Sound and how to safely avoid it.	Coalition to Save Hempstead Harbor
2.1.12 Create and maintain an online data portal containing information on available research regarding derelict fishing gear to be updated annually.	Remote Ecologist, Inc.

## **Strategy 2.2: Research Assessment, Wildlife Impacts and Monitoring**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
2.2.1 Compile a report to document local knowledge regarding ghost fishing and species impacted by lost and abandoned fishing/aquaculture gear.	American Littoral Society; Connecticut Dept. Energy & Environmental Protection – Fisheries; Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium; U.S. Fish & Wildlife Service
2.2.2 Engage with stranding networks and wildlife rehabilitation centers to better understand the marine debris interaction data available for analysis.	Mystic Aquarium; New York Marine Rescue Center; NOAA Marine Debris Program; Remote Ecologist, Inc.; Save the Sound; U.S. Fish & Wildlife Service
2.2.3 Brainstorm methods for collecting wildlife interaction data from the public and how to analyze those data.	
2.2.4 Engage with coastal land managers/refuges, community science programs to monitor and document the extent/types of abandoned gear on public/managed lands and cleanup costs.	U.S. Fish & Wildlife Service

### Strategy 2.3: Proper Disposal and Infrastructure (cont.)

Actions	Lead(s) and Partner(s)
2.3.1 Research successful abandoned and lost fishing/aquaculture gear prevention, recycling and disposal programs and evaluate for adaptation in Long Island Sound.	Connecticut Dept. Energy & Environmental Protection – Marine Fisheries; Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.3.2 With proper state permissions, coordinate directed fishing/aquaculture gear disposal events in Long Island Sound communities.	Connecticut Dept. Energy & Environmental Protection – Marine Fisheries; Cornell Cooperative Extension; New York Sea Grant; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.3.3 Coordinate with state and local authorities, metal recyclers, waste-to-energy companies and haulers annually to return or dispose of recovered fishing/aquaculture gear.	Connecticut Dept. Energy & Environmental Protection – Marine Fisheries; Cornell Cooperative Extension; New York Sea Grant; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.3.4 Modify existing or develop new outreach products on proper disposal and recycling of monofilament lines and share with fishers, boaters and the public.	Atlantic Marine Conservation Society; Connecticut Dept. Energy & Environmental Protection–Wildlife; New York City–Parks; New York Sea Grant; New York State Dept. Environmental Conservation
2.3.5 Support the installation, maintenance and proper use of monofilament disposal receptacles at priority locations in parks, fishing piers and marinas, including signage in English and non-English languages.	Atlantic Marine Conservation Society; Coalition to Save Hempstead Harbor; Connecticut Dept. Energy & Environmental Protection – Wildlife Division; New York State Dept. Environmental Conservation; NOAA Marine Debris Program; The Maritime Aquarium
2.3.6 Inventory existing monofilament bins and bin-monitoring partners and update regularly.	Connecticut Dept. Energy & Environmental Protection – Wildlife Division; Cornell Cooperative Extension; NOAA Marine Debris Program
2.3.7 Seek/share grant opportunities to support the prevention of abandoned and lost fishing/aquaculture gear and its removal annually.	Connecticut Sea Grant; New York Sea Grant; NOAA Marine Debris Program
2.3.8 Coordinate a platform where partners can share ideas for grant applications and ask for collaborators, help with matching funds, recommendation letters or other relevant resources.	Connecticut Sea Grant; Long Island Sound Study; New York Sea Grant; NOAA Marine Debris Program

### **Strategy 2.3: Proper Disposal and Infrastructure (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
2.3.9 Inventory and map abandoned and derelict vessels in Long Island Sound.	New York City – Parks; Save the Sound
2.3.10 Expand fiberglass/vessel recycling in Connecticut and New York.	Connecticut River Conservancy

### **Strategy 2.4: Removal (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
2.4.1 Maintain or acquire the necessary permits to remove abandoned and lost fishing gear.	Connecticut Dept. Energy and Environmental Protection – Marine Fisheries; Cornell Cooperative Extension; New York State Dept. Environmental Conservation; Project Oceanology; Remote Ecologist, Inc.; Save the Sound
2.4.2 Coordinate and support removal (active dragging) regions working alongside commercial fishing and aquaculture industries with one data repository.	Connecticut Dept. Energy & Environmental Protection; Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.4.3 Promote and implement end-of-life trap and pot volunteer collection opportunities in off-seasons (in the Sound and land-based).	Connecticut Dept. Energy & Environmental Protection; Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.4.4 Establish partnerships to remove and recycle traps and return usable, identifiable gear to its owners.	Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.4.5 Investigate available technologies for detecting gear accumulations.	Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium
2.4.6 Promote a platform through which harvesters and others can anonymously report underwater gear accumulations.	
2.4.7 Establish protocols for access to equipment, haulers, storage sites, disposal/recycling sites for the removal of large quantities of fishing gear, docks and derelict vessels.	Cornell Cooperative Extension

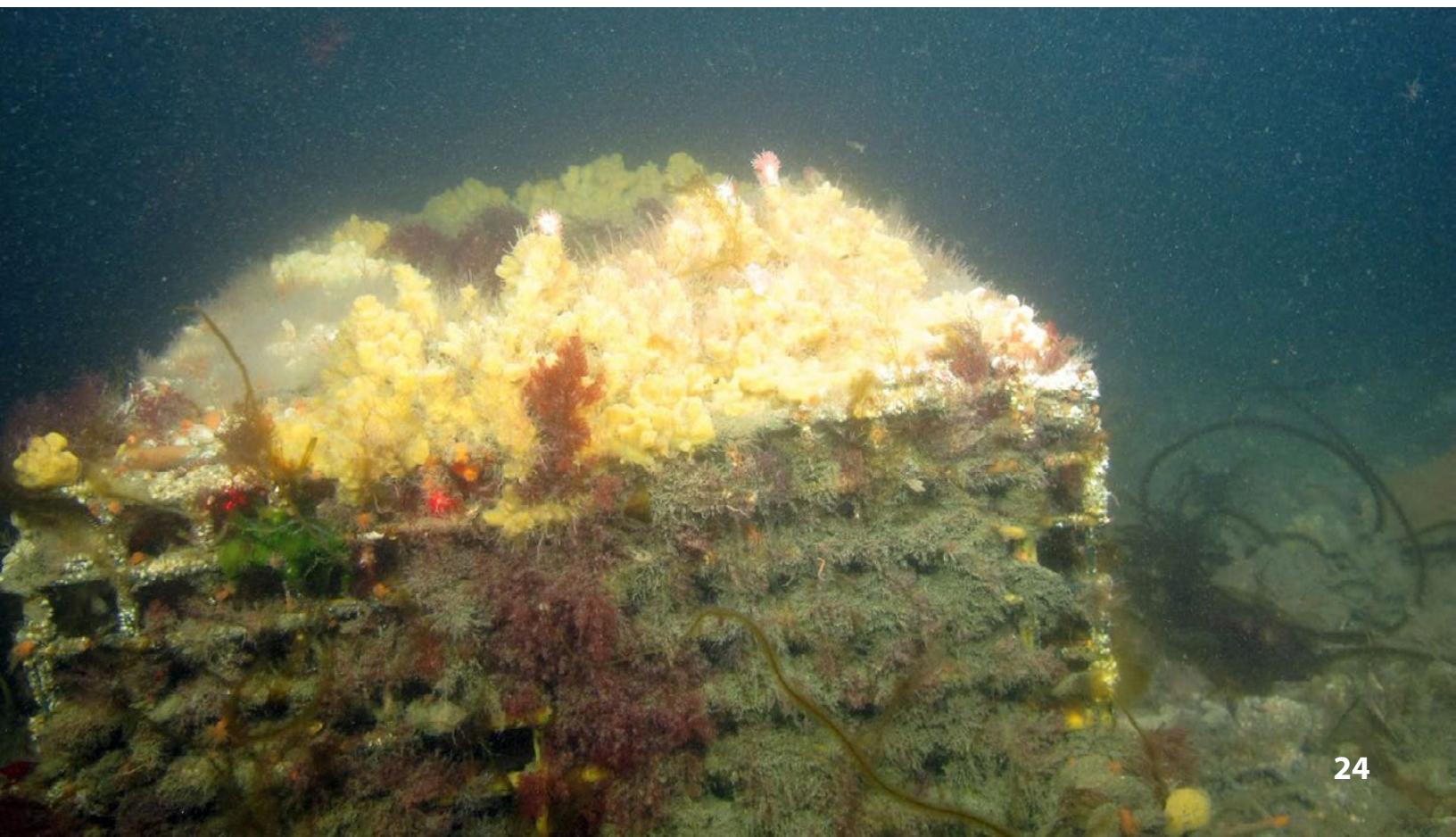
#### **Strategy 2.4: Removal (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
2.4.8 Identify and disseminate the processes involved and organizations and agencies responsible for removing abandoned and derelict vessels in Long Island Sound.	

#### **Strategy 2.5: Policy and Management**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
2.5.1 Synthesize and convey results of lost and abandoned commercial/aquaculture gear recovery programs to state fisheries and aquaculture managers to highlight the role of commercial and recreational fishing (lobster, rod-and-reel, blue crab) and aquaculture in generating and retrieving derelict gear.	Cornell Cooperative Extension; Project Oceanology; Remote Ecologist, Inc.; Save the Sound; The Maritime Aquarium

*Photo: Ivar Babb and LISMaRC Science Team (UConn/U New Haven/USGS), Long Island Sound Study, CT-DEEP*





## Goal 3: Understand, Prevent and Mitigate the Impacts of Microplastics and Microfibers

**Overview of Strategies:** Distribute microplastic outreach/education products and undertake educational campaigns to raise awareness, advance research, support innovative technologies and share resources with policy and management officials to guide policy decisions, build political will and cultivate champions.

**Microplastics** are small plastic particles less than five millimeters in size. Primary microplastics are produced by industry and include pre-production plastic pellets, microbeads and nanobeads. Secondary microplastics come from larger plastic debris breaking up in the environment through natural wear and tear (e.g., UV degradation, abrasion via wave action). Microfibers can be synthetic fibers, such as polyester or nylon, which are used to make clothing, furnishings and even fishing nets and lines. Through general wear or washing and drying, fibers may break apart from larger items. Microplastics and microfibers can enter the marine environment by both water-based and land-based pathways.

Since consumer debris is responsible for much of the generation of secondary microplastics, it is recognized that recommended actions aimed at source reduction and management should be coordinated with those actions included under Goal 1 to be most effective.

*Photo: Syma Ebbin, Connecticut Sea Grant*

### **Strategy 3.1: Prevention, Education and Outreach (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
3.1.1 Identify mechanism(s) / forum(s) for sharing information products, data and other relevant information generated through public-facing communication platforms.	<b>Connecticut Sea Grant; New York Sea Grant; NOAA Marine Debris Program</b>

### Strategy 3.1: Prevention, Education and Outreach (cont.)

Actions	Lead(s) and Partner(s)
3.1.2 Research and review existing communication/outreach products on microplastics and microfibers that are relevant to and could be replicated across Long Island Sound region and make links to them available to partners through relevant portals.	<b>Connecticut Sea Grant</b> ; New York Sea Grant; NOAA Marine Debris Program
3.1.3 Adapt existing/create new outreach products containing relevant microplastics and microfiber information, data, research, best practices, literature and/or funding resources and disseminate to the Long Island Sound marine debris community.	<b>Connecticut Sea Grant</b> ; Hudson River Foundation; Mystic Aquarium; New York Sea Grant; NOAA Marine Debris Program; University of Connecticut;
3.1.4 Inventory/review existing microplastics educational resources to determine availability and appropriateness for P-12 students.	Atlantic Marine Conservation Society; Connecticut Sea Grant; New England Science & Sailing; New York Sea Grant; New York State Dept. Environmental Conservation; Project Oceanology; Southeastern New England Marine Educators
3.1.5 Share existing or new microplastics and microfibers lesson plans that align with Next Generation Science Standards where applicable, and that have been successfully demonstrated through online platforms, in-person events, educator workshops, after-school programs and visits, summer camps, campaigns and field trips, and/or materials relevant to Long Island Sound to raise awareness of relevant microplastic and microfiber issues among P-12 students and P-12 grade educators. (Crosscuts with 1.1.13)	Atlantic Marine Conservation Society; Connecticut Sea Grant; New England Science & Sailing; New York Sea Grant; New York State Dept. Environmental Conservation; Project Oceanology; Southeastern New England Marine Educators
3.1.6 Adapt existing/create new Long Island Sound-focused microplastic and microfiber fact sheet and share it with watershed residents to help inform their actions on being part of the solution.	<b>Connecticut Sea Grant</b> ; Long Island Sound Study; Manhasset Bay Protection Committee; University of Connecticut – Marine Sciences; New York Sea Grant

***Strategy 3.1: Prevention, Education and Outreach (cont.)***

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
3.1.7 Engage with diverse stakeholders including construction and building companies, artificial turf, and tire manufacturers to share information regarding microplastic and microfibers.	

***Strategy 3.2: Research Assessment, Wildlife Impacts and Monitoring (cont.)***

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
3.2.1 Conduct and compile reviews of scientifically sound, peer-reviewed research literature on microplastic and microfiber research relevant to Long Island Sound.	Remote Ecologist, Inc.; University of Connecticut; University of New Haven; Yale University
3.2.2 Seek/share grant opportunities to address Action Plan research priorities, including research: <ul style="list-style-type: none"><li>• to study microplastics and microfibers in Long Island Sound to better understand and identify informational gaps and needs.</li><li>• into technologies and strategies aimed at preventing the creation of microplastics and microfibers, their transport into marine/aquatic systems, and removal from these systems once within them.</li></ul>	Connecticut Sea Grant; Long Island Sound Study; New York Sea Grant; Remote Ecologist, Inc.; University of Connecticut; University of New Haven; U.S. Geological Survey; Yale University
3.2.3 Promote opportunities and engage with interested organizations to develop microplastics and microfiber monitoring programs in Long Island Sound and make the resulting information available to the public.	Mystic Aquarium; U.S. Geological Survey

### **Strategy 3.2: Research Assessment, Wildlife Impacts and Monitoring (cont.)**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
3.2.4 Conduct microplastic and/or microfiber focused webinar(s) or workshop(s) to share the latest research findings relevant to Long Island Sound and make them available to the public	U.S. Fish & Wildlife Service; U.S. Geological Survey

### **Strategy 3.3: Source Reduction**

<b>Actions</b>	<b>Lead(s) and Partner(s)</b>
3.3.1 Review existing research on microplastic and microfiber intercept technologies, evaluate relevance to Long Island Sound and identify data gaps.	University of Connecticut; University of New Haven; Yale University
3.3.2 Collect observational data and analyze cost-benefit for remediation, innovative technologies and/or barriers to using intercept technologies to reduce microfibers and microplastics entering waterways.	
3.3.3 Identify and share information about existing innovative products, technologies and strategies proven to be effective that can be used in consumer homes and in commercial laundry establishments, such as washing machine filters or external filtration washing tools, to reduce/prevent microfiber entry into waterways.	
3.3.4 Identify industry partnerships and pilot projects to promote opportunities to reduce the generation of microplastics or microfibers in supply chains and operations in the private sector, such as in the clothing industry, manufacturing and wholesaling.	Connecticut River Conservancy

### Strategy 3.4: Policy and Management

Actions	Lead(s) and Partner(s)
3.4.1 Engage in meaningful interactions with local and state decision-makers to improve understanding of impacts and management considerations/options for microplastics and microfibers in waterways. <sup>2</sup>	Coalition to Save Hempstead Harbor
3.4.2 Identify and disseminate legislative opportunities focused on microplastics and microfibers (e.g., hearings, testimonials, etc.).	<b>Connecticut Dept Energy &amp; Environmental Protection – Waste Management;</b> New York State Dept. Environmental Conservation
3.4.3 Create, propose and advocate policies for state and county/local ordinances to address microplastic and microfibers.	Citizens Campaign for the Environment
3.4.4 Partner with state fisheries and aquaculture managers to identify industry contacts for microplastics information sharing.	Connecticut Dept. Agriculture – Bureau of Aquaculture; Connecticut Dept. Energy & Environmental Protection - Marine Fisheries Connecticut Sea Grant; New York Sea Grant
3.4.5 Support Extended Producer Responsibility legislation to hold manufacturers responsible for recovery of plastic waste.	Citizens Campaign for the Environment; Coalition to Save Hempstead Harbor
3.4.6 Require washing machine manufacturers to include filters capable of capturing microfibers.	
3.4.7 Address policy gaps related to the use and disposal of microplastics in personal care products and cosmetics.	Citizens Campaign for the Environment

<sup>2</sup>For purposes of this plan, a meaningful interaction is *an interaction with MDAP partners through outreach activities, counting only the number of people directly interacted with during an outreach or educational program*. Examples include having a conversation, leading a lesson, answering a question, playing a game, participating in an activity, etc. Does NOT include overall number of people at an event or programs who do not have some level of substantial involvement with MDAP partners.

# Appendix A: Partner Organizations

2022 Long Island Sound Marine Debris Action Plan partners and leads by organization name and location.

Organization Name	Location
American Littoral Society	NY
Atlantic Marine Conservation Society	NY
Brandeis University - ENACT	MA
Brookhaven National Lab's Day in the Life Program	NY
Citizens Campaign for the Environment	CT/NY
Coalition to Save Hempstead Harbor	NY
Columbia University	NY
Connecticut Dept. Agriculture - Bureau of Aquaculture	CT
Connecticut Dept. Energy & Environmental Protection – Land and Water Resources; Marine Fisheries; Solid Waste Management; Wildlife	CT
Connecticut Marine Trades Association	CT
Connecticut River Conservancy	CT
Connecticut Sea Grant	CT
Cornell Cooperative Extension	NY
Fishers Island Conservancy	NY
Fishers Island School	NY
Friends of Hammonassett Beach State Park	CT
Hudson River Foundation	NY
Long Island Sound Congressional Caucus	CT/NY
Long Island Sound Study	CT/NY
Long Island Sound Study – Citizens Advisory Committee	CT/NY
Long Island Sound Study – Indicators Workgroup	CT/NY
Long Island Sound Study – Sound Stewards Program	CT/NY
Manhasset Bay Protection Committee	NY
Mystic Aquarium	CT
National Geographic Explorers–New England Hub	Regional
New England Science and Sailing	CT
New York City Dept. Environmental Protection	NY
New York City Parks	NY

<b>Organization Name</b>	<b>Location</b>
New York Marine Rescue Center	NY
New York Sea Grant	NY
New York State Dept. Environmental Conservation	NY
NOAA Greater Atlantic Regional Office – Protected Resources Division	Regional
NOAA Marine Debris Program	Regional
North American Marine Environmental Protection Association	International, based in CT
Project Oceanology	CT
Relic Sustainability	NY
Remote Ecologist, Inc.	CT
Save the Sound	CT/NY
Southeastern New England Marine Educators	Regional
The Maritime Aquarium	CT
University of Connecticut – Dept. of Marine Sciences	CT
University of Connecticut-Avery Point EcoHusky Club	CT
University of Hartford	CT
University of New Haven	CT
U.S. Fish & Wildlife Service – Migratory Birds	Regional
U.S. Geological Survey	Regional
Yale University	CT

# Appendix B: Action Plan Metrics

The following action metrics were suggested by partners and leads to track Action Plan success, depending on each organization's activities.

<b><i>Goal 1: Understand, Prevent and Mitigate the Impacts of Single-Use Plastic and Other Water/Land-based Consumer Debris</i></b>	
Action	Suggested Metric(s) for Tracking
1.1.1	Links to resources posted and maintained annually
1.1.2	Number of outreach products for urban audiences adapted/created Number of people engaged Number of products distributed
1.1.3	Number of outreach products for inland audiences adapted/created Number of people engaged Number of products distributed
1.1.4	Number of outreach products for coastal audiences adapted/created Number of people engaged Number of products distributed
1.1.5	Number of adapted or new social media campaigns implemented Number of people engaged
1.1.6	Number of people engaged in meaningful interactions Number of outreach activities
1.1.7	Pilot project launched Evaluation completed
1.1.8	Number of events hosted Number of people engaged
1.1.9	Number of resources developed/shared Number of municipalities and policymakers reached
1.1.10	Number of campaigns implemented
1.1.11	Number of resources created/adapted and disseminated Number of partners employing initiatives
1.1.12	Inventory of resources developed and updated
1.1.13	Number of educational materials created/adapted and disseminated Number of P-12 educators reached Number of P-12 students reached
1.1.14	Number of high schools and universities reached Number of professional development opportunities shared
1.1.15	Number of outreach materials created/adapted and disseminated Number of campaigns supported

**Goal 1: Understand, Prevent and Mitigate the Impacts of Single-Use Plastic and Other Water/Land-based Consumer Debris (cont.)**

Action	Suggested Metric(s) for Tracking
1.1.16	Number of private sector partners engaged
1.1.17	Number of tools identified Inventory created/shared and updated annually Number of brochures distributed Number of website visits
1.1.18	Action guide created
1.1.19	Number of businesses engaged Number of case studies/best practices shared
1.1.20	Number of restaurants and food services industries engaged in learning about programs Number of restaurants and food services industries participating in programs
1.1.21	Number of wholesalers engaged
1.1.22	Semi-annual reporting of metrics – ICC database includes date, # people, weight collected, distance covered, and group name, plus location Annual report on LISS Ecosystem Target related to marine debris
1.1.23	Gap analysis conducted Number of new partners engaged Number of at-risk areas identified Tools and resources distributed in support of additional cleanups
1.1.24	Links shared and updated
1.2.1	Annual review of data
1.2.2	Review of campaign effectiveness completed
1.2.3	Funding opportunities shared widely as available
1.2.4	Standardized metrics for surveys developed and implemented
1.2.5	Number of community science programs promoted Number of people engaged
1.2.6	Survey completed
1.3.1	Number of installations
1.3.2	Number of disposal receptacles installed Number of parks, towns, or communities with new receptacles
1.3.3	Number of removal actions
1.3.4	Number of disposal bins installed Number of marinas Number of maintenance and education programs
1.3.5	Number of bags distributed

**Goal 1: Understand, Prevent and Mitigate the Impacts of Single-Use Plastic and Other Water/Land-based Consumer Debris (cont.)**

Action	Suggested Metric(s) for Tracking
1.3.6	Number of pilot programs Number of beaches with programs
1.3.7	Number of shrink wrap recycling opportunities identified and shared Pounds of shrink wrap recycled
1.4.1	Number of cleanup events Numbers of cleanup participants Locations of cleanup events Miles of beaches cleaned
1.5.1	Number of local, county, state and federal officials engaged
1.5.2	Number of new local / county / state policies and management plans developed Number of policies adopted
1.5.3	Listserv developed and maintained

**Goal 2: Understand, Prevent and Mitigate the Impacts of Abandoned and Lost Fishing/Aquaculture Gear (cont.)**

Action	Suggested Metric(s) for Tracking
2.1.1	Number of Best Management Practices (BMPs) suitable for Long Island Sound
2.1.2	Methods/Best Management Practices shared
2.1.3	Campaign developed and implemented
2.1.4	Number of fishing and aquaculture businesses engaged
2.1.5	Number of fishing and aquaculture businesses engaged Number of cost-effective alternatives identified and shared
2.1.6	Funding opportunities shared as available
2.1.7	Number of gear innovations shared Number of innovations adopted
2.1.8	Number of recreational fisheries action plans incorporating marine debris issues
2.1.9	Number of outreach events
2.1.10	Number of outreach products translated
2.1.11	One-pager drafted Number distributed
2.1.12	Database created Annual update

**Goal 2: Understand, Prevent and Mitigate the Impacts of Abandoned and Lost Fishing/Aquaculture Gear (cont.)**

Action	Suggested Metric(s) for Tracking
2.2.1	Report compiled and updated
2.2.2	Number of stranding networks/rehabilitation centers contacted Summary of available data from relevant organizations/public
2.2.3	New public data collection method developed and tested
2.2.4	Number of coastal land managers/refuges engaged Number of community science programs engaged Extent/types of abandoned gear on public/managed lands Average cost per cleanup
2.3.1	Number of programs suitable for Long Island Sound
2.3.2	Number of disposal events facilitated Pounds of gear collected
2.3.3	Number of state and local authorities engaged Pounds of gear collected Pounds recycled or disposed of sustainably
2.3.4	Number of outreach products shared
2.3.5	Number of monofilament disposal receptacles Number of new installation locations Locations of installations
2.3.6	Inventory and map completed and updated annually
2.3.7	Funding opportunities shared as available
2.3.8	Platform identified and utilized by partners
2.3.9	Inventory and map completed
2.3.10	Fiberglass recycling locations, potential projects identified
2.4.1	Number of permits maintained and utilized
2.4.2	Number of disposal events facilitated Pounds of gear collected/number of traps collected Number of industry partners involved Number of species and individuals captured
2.4.3	Number of events hosted Pounds of gear collected
2.4.4	Number of partnerships established Number of pots returned to owners
2.4.5	Inventory of detection technologies complete
2.4.6	Portal shared with fishing communities

**Goal 2: Understand, Prevent and Mitigate the Impacts of Abandoned and Lost Fishing/Aquaculture Gear (cont.)**

Action	Suggested Metric(s) for Tracking
2.4.7	Protocols established and shared
2.4.8	Report compiled
2.5.1	Number of fisheries managers /industry members contacted Comprehensive reporting on type/quantity and location of gear recovered

**Goal 3: Understand, Prevent and Mitigate the Impacts of Microplastics and Microfibers (cont.)**

Action	Suggested Metric(s) for Tracking
3.1.1	Mechanisms/ forums identified and utilized
3.1.2	Links made available and updated
3.1.3	Number of outreach products and materials created / shared
3.1.4	Number of stakeholders engaged
3.1.5	Number of lesson plans and educational materials shared Number of P-12 students engaged Number of P-12 educators engaged
3.1.6	Fact sheet created and shared
3.1.7	Number of stakeholders engaged
3.2.1	Number of literature review(s) completed
3.2.2	Funding opportunities shared as available Informational gaps and needs identified
3.2.3	Number of monitoring programs Information shared annually
3.2.4	Number of webinars Number of webinar attendees
3.3.1	Research review completed Data gaps identified
3.3.2	Cost-benefit analysis completed
3.3.3	Information on products or intercept technology distributed
3.3.4	Number of industry partnerships established Number of pilot projects

**Goal 3: Understand, Prevent and Mitigate the Impacts of Microplastics and Microfibers (cont.)**

Action	Suggested Metric(s) for Tracking
3.4.1	Number of local and state decision-makers engaged
3.4.2	Number of legislative opportunities disseminated
3.4.3	Number of new state policies and/or county/local ordinances addressing microplastics and microfibers
3.4.4	Number of state fisheries/aquaculture managers engaged Number of Industry members engaged
3.4.5	EPR legislation supported
3.4.6	Number of manufacturers including filters
3.4.7	Number of policy gaps addressed



*Photo: Judy Benson, Connecticut Sea Grant*



Photo: Judy Benson, Connecticut Sea Grant