



2020 Great Lakes Marine Debris Action Plan

January 2020

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Acknowledgements

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Several actions contained herein reference potential legislative changes. These actions will be carried out by interested partner organizations and are not affiliated with NOAA or the NOAA Marine Debris Program.

Table of Contents

Background.....	4
Purpose	4
Process.....	5
Plan Structure	5
Plan Monitoring.....	6
Goal 1: Research & Monitoring.....	7
Goal 2: Policy & Management.....	10
Goal 3: Prevention	12
Goal 4: Removal	14
Contact List	17

Background

The National Oceanic and Atmospheric Administration Marine Debris Program (NOAA MDP) 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.

While perhaps more commonly thought of as an oceanic problem, the Great Lakes Region, with its complex system of habitats, wetlands, rivers, and tributaries, is an area that is also affected by debris. Debris in the Great Lakes ranges from microplastics to abandoned and derelict vessels, and is generally classified into two source categories: lake-based and land-based. Lake-based debris includes items that are dumped, swept, or blown from vessels or stationary platforms at sea, as well as abandoned, lost, or derelict fishing gear. Land-based debris includes debris from intentional or unintentional littering and dumping in rivers and streams, as well as from storm water discharges and waste management practices.

Marine debris can have many negative impacts, including threats to navigation, damage to ships and fishing equipment, and risks of ingestion by and entanglement of marine or aquatic species. Debris also has the ability to smother fragile habitats such as coral reefs and seagrass beds. It affects tourism, recreation, fisheries, ecosystem functions, quality of life, and economies.

The Great Lakes marine debris community made great strides to address the issue over the past five years through the 2014-2019 Great Lakes Land-based Marine Debris Action Plan. This work included completing research and publishing scientific articles, engaging with the policy and management community, educating the public and students, and removing debris from the environment. In total, 180,062 people were educated on the topic during 711 events and approximately 306,665 pounds of debris was removed by volunteers. A full [accomplishments report](#) is available for reference.

Marine debris is a global issue. However, there are solutions to this problem. We have a responsibility to protect the Great Lakes environment upon which we all depend. We will need to continue to work together on tactics to assist with cleanup, as well as on solutions to stop the pollution at the source.

Purpose

The Great Lakes Marine Debris Action Plan (Action Plan) establishes a comprehensive framework for strategic action to ensure the Great Lakes and its coasts, people, and wildlife are free from the impacts of marine debris. This Action Plan encompasses work that will be undertaken in the next five years (2020 - 2025). The Action Plan is one of several being implemented in coastal regions across the country. Due to the complexity of marine debris issues, many stakeholders can play a role in the Action Plan's implementation, including private citizens; federal, state, and local governments; private businesses and industry; and nongovernmental and academic organizations. All are welcome to participate in these efforts, and can engage directly by emailing the NOAA MDP Great Lakes Regional Coordinator, Sarah Lowe, at Sarah.Lowe@noaa.gov.

Vision

The Great Lakes, its coasts, people, and wildlife free from the impacts of marine debris.

Mission

The Great Lakes will be free from marine debris through increased understanding of the problem, preventative actions, reductions in impacts, and collaborative efforts of diverse groups.

Process

Following the completion of the 2014-2019 Great Lakes Land-based Marine Debris Action Plan, participants provided feedback on improvements to its scope, structure, implementation, monitoring, and communication. There was also interest from the community to build on successes and develop a new five-year Action Plan.

Using feedback from the previous 2014-2019 Action Plan, this new 2020-2025 Action Plan was drafted at a workshop on August 28-29, 2019 at the Toledo Zoo & Aquarium in Ohio. Approximately 40 participants reviewed the objectives and proposed actions under the previous four plan goals. Following the workshop, the draft Action Plan was distributed to both attendees and the wider Great Lakes marine debris community for additional feedback and to provide further opportunity to participate in action strategies.

Plan Structure - Marine Debris Goals, Objectives, and Actions

This Action Plan is centered on the development and maintenance of strategic partnerships to address marine debris in the Great Lakes Region. As such, ownership of this Action Plan belongs to the wider Great Lakes marine debris community.

The tables below are the core of the Action Plan. They list goals, objectives, and actions that contribute to achieving the Action Plan's vision.

Goals

Goal 1: The research and monitoring of marine debris addresses knowledge gaps and informs action.

Goal 2: A science-based, strategic approach guides marine debris policy and management decisions in the Great Lakes.

Goal 3: Marine debris is prevented and reduced through an educated and involved community.

Goal 4: The marine debris that reaches the Great Lakes environment is removed to minimize adverse impacts.

Objectives

In the context of this Action Plan, the objectives define how each goal will be achieved. Typically, there are several objectives per goal.

Actions

Actions are projects and activities supporting an objective undertaken to achieve the associated goal. In this Action Plan, Leads and Partners are entities that have volunteered to carry out a given action, pending the availability of resources (e.g., funding, staff, time, materials, etc.). Leads are responsible for undertaking actions that fulfill the objectives and reporting on the progress, challenges, and completion of the action. Partners are responsible for supporting and undertaking actions that fulfill the objective and for providing input on progress.

Plan Monitoring

Regular communication is essential to maintain the strategic partnerships needed to accomplish the goals and objectives of this Action Plan. There will be two progress check-ins per year to allow participants to share information on their actions and objectives. Documented progress may also be captured in an annual summary report or newsletter. The NOAA Marine Debris Program will facilitate overall coordination of check-ins and reporting. This role may be adapted as the Action Plan proceeds.

The Great Lakes marine debris community recognizes the need for this Action Plan to be evaluated and revisited within the five-year timeframe. Unforeseen challenges or gaps may arise in its implementation. Therefore, a mid-plan review and evaluation will be performed to better understand which goals, objectives, and actions are well supported and achievable, and which may require further assistance. Elements of the Action Plan may be adapted and new actions or objectives may be added at this time. Upon its conclusion, the Action Plan will undergo a final evaluation and an accomplishments report will be generated.



Goal 1: Research & Monitoring

The research and monitoring of marine debris addresses knowledge gaps and informs action.

Microbeads sieved from toothpaste during an educator workshop (Photo credit: Ohio Sea Grant).

Objective 1.1. Over the next five years, highlight current research and provide opportunities for collaboration.

Actions	Lead(s) [bold] and Partner(s)
1.1.1. Annually convene researchers at a scientific conference.	NOAA MDP, Environment Climate Change Canada
1.1.2. Annually host a webinar for scientists to strategize funding and collaboration opportunities for marine debris research.	NOAA MDP , University of Western Ontario
1.1.3. By 2025, publish a minimum of 10 peer-reviewed papers on Great Lakes marine debris.	University of Wisconsin-Superior , University of Toronto, Penn State Behrend, OH Sea Grant, Rochester Institute of Technology, Wayne State University, University of Western Ontario, Loyola University
1.1.4. Annually host a research webinar to share research results with stakeholders.	Pollution Probe , NOAA MDP, Wayne State University
1.1.5. Translate research results for the public on at least one marine debris research topic per year.	Pollution Probe , Wayne State University, Great Lakes Sea Grant Network, Loyola University

Objective 1.2. By 2025, address at least four identified research gaps and complete at least 20 research projects.

Actions	Lead(s) [bold] and Partner(s)
1.2.1. By 2021, write a peer-reviewed research review paper on marine debris in the Great Lakes Region and identify key data gaps for the research community.	University of Western Ontario , University of Wisconsin-Superior, Penn State Behrend, University of Toronto, Rochester Institute of Technology, Wayne State University, Loyola University
1.2.2. Within the first two years of the plan, host one basin-wide workshop with researchers and stakeholders to seek input on research priorities.	Old Woman Creek NERR, Penn State Behrend , Great Lakes Sea Grant Network, Wayne State University, University of Western Ontario, NOAA MDP
1.2.3. By 2021, establish and test standardized metadata for various environmental media (water, sediment, biota).	Penn State Behrend , Pollution Probe, Council of the Great Lakes Region, Shedd Aquarium
1.2.4. By 2025, complete at least five studies on the sources and pathways of marine debris into the Great Lakes.	University of Western Ontario , Rochester Institute of Technology, University of Wisconsin-Superior, University of Toronto, Loyola University, Shedd Aquarium, Gannon University
1.2.5. By 2025, complete at least five studies on the fate and transport of marine debris in the Great Lakes.	Rochester Institute of Technology , University of Western Ontario, University of Wisconsin-Superior, University of Toronto, Shedd Aquarium
1.2.6. By 2025, complete at least five social science studies on marine debris in the Great Lakes.	OH Sea Grant , Old Woman Creek NERR
1.2.7. By 2025, complete at least five studies on the impacts of marine debris in the Great Lakes.	University of Toronto , Penn State Behrend, University of Wisconsin-Superior, Rochester Institute of Technology, Loyola University

Objective 1.3. Update and maintain the Great Lakes Marine Debris Collaborative Portal for long-term collaboration on Great Lakes marine debris research.

Actions	Lead(s) [bold] and Partner(s)
1.3.1. By 2022, use the Great Lakes Marine Debris Collaborative Portal to recommend and encourage the use of standardized metadata.	Penn State Behrend , Wayne State University
1.3.2. Increase the number of research projects entered into the Great Lakes Marine Debris Collaborative Portal by 10% each year.	All participants
1.3.3. Each week, monitor and approve new uploads to the Great Lakes Marine Debris Collaborative Portal.	NOAA MDP



Goal 2: Policy & Management

A science-based, strategic approach guides marine debris policy and management decisions in the Great Lakes.

Trash and recycling overflow from bins in a public park (Photo credit: NOAA).

Objective 2.1. Over the next five years, develop and share at least 10 marine debris resources with policy and management officials to guide policy decisions.

Actions	Lead(s) [bold] and Partner(s)
2.1.1. By 2021, develop a summary paper on the effectiveness of current marine debris related policies and associated behavior changes to inform new policy actions.	OH Sea Grant , Sea Grant Law Center, Surfrider Foundation, Shedd Aquarium
2.1.2. By 2025, upload and maintain enacted marine debris legislation and policy documents to the Great Lakes Marine Debris Collaborative Portal.	NOAA MDP , Surfrider Foundation, Shedd Aquarium
2.1.3. By 2025, develop and provide fact sheets on commonly littered items, as well as policy summary documents, to at least 20 local, state, and national policy representatives.	Surfrider Foundation , Shedd Aquarium

Objective 2.2. Within the next five years, inform solid waste best management practices and start a bi-national Circular Economy Dialogue and Collaborative.

Actions	Lead(s) [bold] and Partner(s)
2.2.1. By 2025, host at least eight marine debris workshops for wastewater/stormwater professionals to inform best management practices for preventing marine debris.	Old Woman Creek NERR, Council of the Great Lakes Region, NOAA MDP, Great Lakes Clean Marina Network, Lake Superior NERR, Michigan Department of Environment, Great Lakes, and Energy, Cuyahoga County Solid Waste District, Cuyahoga Soil & Water Conservation District, EcoSuperior
2.2.2. By 2022, analyze recycling trends and strategies and make at least three recommendations for improved/increased recycling in residential, business, and public sectors.	OH Sea Grant, Council of the Great Lakes Region, Old Woman Creek NERR, Lake Superior NERR
2.2.3. By the end of 2020, identify and invite 50 stakeholders, representing entities from each of the Great Lakes Region states and provinces, to help form the Great Lakes Circular Economy Dialogue and Collaborative.	Council of the Great Lakes Region, PA Sea Grant
2.2.4. By 2022, the Great Lakes Circular Economy Dialogue and Collaborative will develop a strategic plan to advance a circular economy and resource efficiency in the Great Lakes Region.	Council of the Great Lakes Region, NOAA MDP, City of Cleveland Office of Sustainability, Shedd Aquarium
2.2.5. By 2025, introduce and implement best management practices outlined by the Great Lakes Circular Economy Dialogue and Collaborative with at least five entities.	Council of the Great Lakes Region, City of Cleveland Office of Sustainability



NOAA MDP educating Girl Scouts at the Aquatic Visitors Center on South Bass Island, OH (Photo credit: Ohio Sea Grant).

Objective 3.1. By 2025, develop, adapt, and distribute at least three well-informed prevention strategies on marine debris.

Actions	Lead(s) [bold] and Partner(s)
3.1.1. By the end of 2020, identify at least three audiences for a needs assessment and recommend lead organizations to complete the assessments.	Great Lakes Sea Grant Network , Buffalo Niagara Waterkeeper, Old Woman Creek NERR, Lake Superior NERR
3.1.2. By the end of 2022, conduct a needs assessment for each of the three identified audiences.	Old Woman Creek NERR, IL/IN Sea Grant, NOAA MDP, Lake Superior NERR, Ohio Clean Marinas [Leads to be determined by previous strategy]
3.1.3. By 2025, develop/adopt and distribute a minimum of one prevention strategy per audience based on the needs assessment and sound science.	To be determined by previous action and based on audience.

Objective 3.2. Establish coordinated marine debris messaging in 20 organizations for use in outreach, marketing, and Action Plan retention/recruitment by 2025.

Actions	Lead(s) [bold] and Partner(s)
3.2.1. By the end of 2020, research regional and national messaging campaigns (e.g., Stop Aquatic Hitchhikers) and develop a list of recommendations.	Great Lakes Sea Grant Network , City of Cleveland Office of Sustainability, Shedd Aquarium, Center for Biological Diversity
3.2.2. By the end of 2023, create a consistent messaging campaign that could be adopted by new and existing Action Plan partners.	NOAA MDP, IL/IN Sea Grant , Wayne State University, Shedd Aquarium, Center for Biological Diversity
3.2.3. By the end of 2023, develop a Great Lakes marine debris awareness kit for use in education and outreach.	NOAA MDP, GL Sea Grant Network , Surfrider Foundation, Old Woman Creek NERR, Shedd Aquarium
3.2.4. Recruit and distribute Great Lakes marine debris awareness kits to at least 20 partners in the U.S. and Canada by 2025.	All - captured in reporting

Objective 3.3. By 2025, conduct 250 education and/or outreach activities, with a minimum of five per year, per lake.

Actions	Lead(s) [bold] and Partner(s)
3.3.1. By 2025, conduct marine debris education activities with educators and students of all ages in the Great Lakes Region.	All - captured in reporting
3.3.2. By 2025, conduct outreach to the general public in the Great Lakes Region.	All - captured in reporting
3.3.3. By 2025, support the adoption of marine debris prevention best practices and stewardship activities (e.g., Zero or reduced waste events, service or industry prevention best management practices).	PA & MI Sea Grants, Council of the Great Lakes Region , New York State Pollution Prevention Institute, City of Cleveland Office of Sustainability, Old Woman Creek NERR, Surfrider Foundation, Thunder Bay NMS, University of Toronto, Center for Biological Diversity



Goal 4: Removal

The marine debris that reaches the Great Lakes environment is removed to minimize adverse impacts.

Marine debris removed from South Bass Island State Park, OH (Photo credit: NOAA).

Objective 4.1. By 2025, remove 500 tons of marine debris from the Great Lakes environment.	
Actions	Lead(s) [bold] and Partner(s)
4.1.1. Track total tonnage removed through volunteer efforts in Great Lakes environments through 2025.	Ocean Conservancy , Keep America Beautiful, Surfrider Foundation, Shedd Aquarium, University of Toronto, Alliance for the Great Lakes
4.1.2. Include currently underrepresented volunteers from both urban and rural communities in an annual cleanup.	Surfrider Foundation , Buffalo Niagara Waterkeeper, Shedd Aquarium, Alliance for the Great Lakes, Partners for Clean Streams, University of Toronto, New York State Pollution Prevention Institute
4.1.3. By 2025, include industry representatives in one removal event in each lake.	Ocean Conservancy, Council of the Great Lakes Region , Buffalo Niagara Waterkeeper, Shedd Aquarium, Partners for Clean Streams, University of Toronto

Objective 4.1. By 2025, remove 500 tons of marine debris from the Great Lakes environment.

Actions	Lead(s) [bold] and Partner(s)
4.1.4. By 2025, include political representatives in one removal event in each lake.	OH Sea Grant, Council of the Great Lakes Region , Shedd Aquarium, Buffalo Niagara Waterkeeper, Great Lakes Sea Grant Network, University of Toronto
4.1.5. By 2025, coordinate a one-day Great Lakes Region cleanup event, both land-based and lake-based.	New York State Pollution Prevention Institute , Council of the Great Lakes Region, Buffalo Niagara Waterkeeper, Surfrider Foundation, University of Toronto

Objective 4.2. By 2025, bi-nationally record and report count and weight (by tons) of marine debris removed from the Great Lakes' shorelines and watersheds.

Actions	Lead(s) [bold] and Partner(s)
4.2.1. By 2021, inventory marine debris data collection methods across the Region and share methods on the Great Lakes Collaborative Portal.	Buffalo Niagara Waterkeeper
4.2.2. By 2025, provide support to 10 organizations not currently collecting marine debris data to encourage data collection, including supplying data cards and hosting webinars.	Ocean Conservancy , Keep America Beautiful
4.2.3. Identify methods for tracking municipality and park marine debris removal efforts and record metrics currently collected.	City of Toledo , Council of the Great Lakes Region, Cleveland Metroparks
4.2.4. Pilot brand-tracking data collection for debris removed by 2022.	Ocean Conservancy , Council of the Great Lakes Region, Buffalo Niagara Waterkeeper
4.2.5. Engage industries identified in brand-tracking (action 4.2.4) on prevention and removal methods by 2025.	Council of the Great Lakes Region , Pollution Probe, Ocean Conservancy, Buffalo Niagara Waterkeeper

Objective 4.3. Identify existing removal best management practices (BMPs) and funding opportunities and make them available to all partners in the region within the next five years.

Actions	Lead(s) [bold] and Partner(s)
4.3.1. By 2022, inventory published removal BMPs, make them available to all partners in the Region via the Great Lakes Collaborative Portal, and identify gaps in existing BMPs.	Gannon University , Buffalo Niagara Waterkeeper, Pollution Probe
4.3.2. By 2025, track types and effectiveness of marine trash capture projects in Great Lakes environments.	Keep America Beautiful , Council of the Great Lakes Region
4.3.3. By 2025, coordinate with emergency response agencies to develop a plan for marine debris removal following natural disasters, and make available to all partners via the Great Lakes Collaborative Portal.	Council of the Great Lakes Region , NOAA MDP, OH Clean Marinas, Lake Superior NERR, Keep America Beautiful
4.3.4. By 2022, identify five types of debris that can be diverted from landfill following removal.	Old Woman Creek NERR , Council of the Great Lakes Region, Buffalo Niagara Waterkeeper

Contact List

List of 2020 Great Lakes Marine Debris Action Plan participants.

Organization	Last Name	First Name	Email
Alliance for the Great Lakes	Drag	Nate	ndrag@greatlakes.org
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