



The Great Lakes Marine Debris Action Plan: 2015 Action Summary Report

NOAA Marine Debris Program
National Oceanic and Atmospheric Administration
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The Great Lakes Land-based Marine Debris Action Plan

2015 Action Summary Report



Information collected and summarized by the NOAA Marine Debris Program on behalf of the Great Lakes Marine Debris Community.

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Executive Summary

The following document details progress on the Great Lakes Land-based Marine Debris Action Plan: Lowe, S.E. (ed.) (2014). The Great Lakes Land-Based Marine Debris Action Plan. NOAA Technical Memorandum NOS-OR&R-49. This action plan consists of 53 actions which are to be completed within five years (2014-2019). As indicated in the plan, there is to be an Action Summary Report completed each calendar year to monitor progress. This Action Summary Report highlights progress made in 2015.

During the first two years of the plan, contributors to the Great Lakes Land-based Marine Debris Action Plan began work on 34 actions and successfully completed 5 actions. Fourteen actions will be started in the future.

In 2015, the following three actions were completed: 1) Publish a synthesis paper on plastic marine debris research in the Great Lakes; 2) Identify target audiences and potential new partners for future education efforts; and 3) Host a teacher workshop or class on land-based marine debris.

Semi-annual check-ins for the action plan were held on May 22 and November 19, 2015. During the webinars, participants heard and shared a summary of action progress to date. Specifically, summary information was presented for each of the four goals in the action plan, completed actions were highlighted in presentations, and other high-level updates were given from action coordinators. The webinar ended with an open discussion of feedback on reporting, communications, and challenges. Recordings of the webinars can be found here:

May 2015 (<http://bit.ly/1SMBs9Q>)

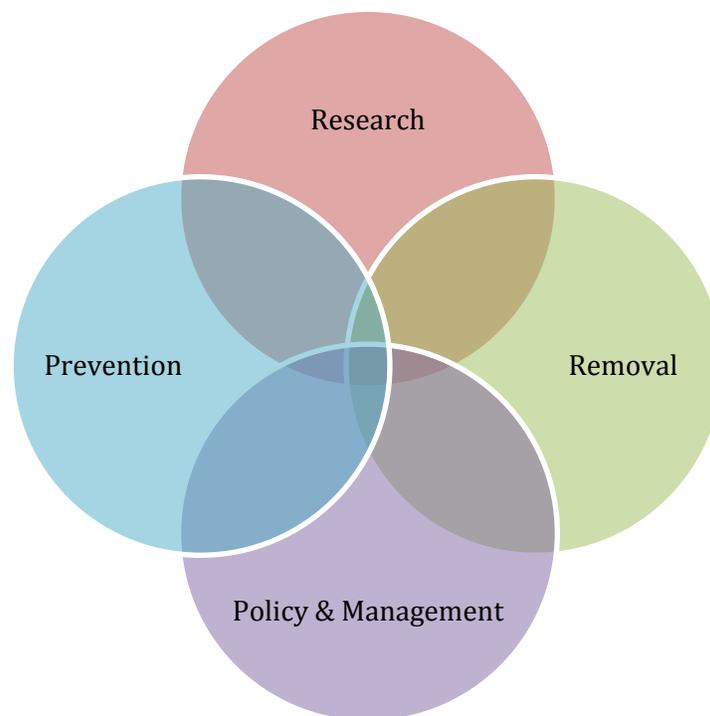
November 2015 (<http://bit.ly/1RAoNYu>)

Action Plan Status

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

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

FOUR GOALS

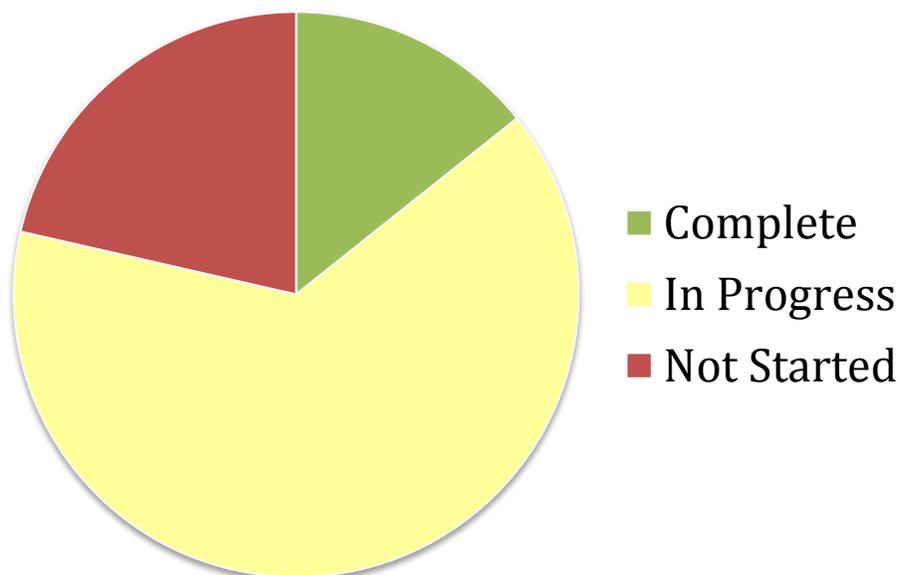


Goal 1: Knowledge gaps are identified and filled through research and monitoring of land-based marine debris.

Action Status:

2 Complete
9 In-Progress
3 Not Started

Goal 1 Action Progress



GOAL HIGHLIGHT

Complete: *Publish synthesis paper on plastic marine debris research in the Great Lakes.*

Researchers at the University of Waterloo in Ontario, Canada completed a review paper of research on plastic marine debris in the Great Lakes. The synthesis paper, entitled "Plastic debris in the Laurentian Great Lakes: A review," was published in the March 2015 issue of the *Journal of Great Lakes Research*. Within the paper, the authors provide information on

the current state of knowledge, identify knowledge gaps, and suggest future research directions on plastic marine debris. The full citation is as follows:

Driedger, A., Durr, H., Mitchell, K., Van Cappellen, P. (2015). Plastic debris in the Laurentian Great Lakes: A review. *J. Great Lakes Res.*, 41, 9-19.

Goal 1: Knowledge gaps are identified and filled through research and monitoring of land-based marine debris.			
<i>Objective 1: By the end of 2016, develop a platform for long-term collaboration on Great Lakes marine debris research.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Convene a small working group to discuss research community needs, timeline, scale, and intent for a future platform.	<p><u>Coordinator:</u> NOAA MDP</p> <p><u>Partners:</u> University of Waterloo, Clean Water Action</p> <p><u>Participants:</u> All research organizations</p>	In Progress	NOAA MDP is working on the development of a regional web-platform for the Great Lakes marine debris community. Stakeholders received an initial request for ideas/desires for the platform, and also provided input on the prioritization of features. Next steps include a discussion with potential developers.
2. Once needs analysis is complete, examine existing platforms to meet those needs.	Coordinator: NOAA MDP	In Progress	NOAA MDP is exploring several platforms already in existence that could be tailored to meet regional needs and which would be aligned with IT security requirements.

Objective 2: By 2016, convene researchers to foster partnerships and collaboration.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Share current venue opportunities and identify invitees. Invitees should include those researchers who are currently involved in, or have an interest in land-based marine debris research in the region.	<p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partners:</u> SUNY Fredonia, NOAA MDP, University of Wisconsin-Superior</p>	In Progress	The Alliance has invited Sam Mason to participate in speaking engagements through the "Plastic Waters" exhibit in Buffalo. In addition, Lorena Rios presented at a September Adopt-a-Beach training in MN. Jamie Cross presented results from Loyola University's analysis of Adopt-a-Beach data at the Great Lakes Beach Conference/State of Lake Michigan Conference in Traverse City on October 28th. This presentation was webcast beyond conference attendees. At that same conference, Sam Mason presented and facilitated a panel discussion with GL marine debris researchers: Tim Hoellein (Loyola University) and Melissa Duhaim (University of Michigan). Mason was invited to be involved in the conference by Inland Seas Education Association.
2. Host a research panel or session at a regional conference.	<p><u>Coordinator:</u> University of Michigan</p> <p><u>Partner:</u> University of Wisconsin-Superior</p>	Complete	IAGLR 2014 session is complete. See Goal Highlight in 2014 Summary Report for details. Researchers also gathered again at IAGLR in 2015 for a session on marine debris.
Objective 3: Over the next five years, create summary documents of existing research on land-based marine debris and identify key data gaps for the research community.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Publish synthesis paper on plastic marine debris research in the Great Lakes.	<p><u>Coordinator:</u> University of Waterloo</p>	Complete	The synthesis paper, entitled "Plastic debris in the Laurentian Great Lakes: A review," was published in the March 2015 issue of the Journal of Great Lakes Research. (doi:10.1016/j.jglr.2014.12.020)

2. Based on results of synthesis paper, perform a gap analysis to identify research needs in the region.	<p><u>Coordinator:</u> NOAA MDP</p> <p><u>Partners:</u> University of Waterloo, University of Western Ontario, University of Michigan, Loyola University, SUNY Fredonia, University of Wisconsin-Superior, Environment Canada</p>	Not Started	Work on this action will begin in January 2016 and will also be discussed at a workshop which will be held in conjunction with IAGLR 2016.
Objective 4: <i>Through 2019, engage Great Lakes management communities to prioritize and foster implementation of relevant research topics.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Identify relevant management stakeholders and establish communication channels.	<p><u>Coordinator:</u> Great Lakes Sea Grant Network</p> <p><u>Partner:</u> GL National Estuarine Research Reserves (NERRs)</p>	In Progress	In 2015, Ohio Sea Grant and the NOAA Marine Debris Program assisted Congresswoman Marcy Kaptur in identifying Lake Erie challenges and stewardship needs. At the request of Congressional District 9, we developed a competition for students in grades 9-12. The competition will require students to choose a marine debris lesson, conduct data collection/ experimentation or a stewardship activity, and create a Public Service Announcement that reflects the issue. Entries are due in March 2016.
2. Through established communication channels, work with management stakeholders to develop a list of research questions that are of interest to the Great Lakes management community.	<p><u>Coordinator:</u> Great Lakes Sea Grant Network</p> <p><u>Partner:</u> NERRs</p>	In Progress	Sea Grant programs will continue to reach out to stakeholders to develop a list of research questions of interest to the Great Lakes management community.

Objective 5: Within the next five years, the Great Lakes research community will address knowledge gaps on land-based marine debris by completing and publishing a minimum of two studies.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Based on completed synthesis paper and gap analyses (Obj 3), develop a list of prioritized questions that need to be addressed and share it with regional research community.	<u>Coordinator:</u> NOAA MDP <u>Partners:</u> Researchers, Alliance for the Great Lakes, Environment Canada, Inland Seas Education Association	Not Started	Work on this action will begin soon after those actions in Objective 3.
2. Identify funding sources for land-based marine debris research, both current and future.	<u>Coordinator:</u> University of Waterloo, University of Michigan <u>Partner:</u> Great Lakes Sea Grant Network, University of Wisconsin-Superior	In Progress	The current plan is to first reach out locally (including university level, provost offices, etc.) and progress to identifying state, regional, (bi) national funding sources.
3. Create and send a bi-national letter to inform potential funding officials of regional research needs for land-based marine debris.	<u>Coordinator:</u> University of Waterloo, University of Michigan	In Progress	No progress has been made in this reporting period. We have identified challenges, which include identifying potential funding officials (to be tackled in Action 2). The second challenge will be the comprehensive and realistic statement of regional research needs. We will rely on our research community for input on this, including convening at the IAGLR 2016 meeting. The third challenge will be identifying the formal procedure, tone, and audience for writing such a letter.

Objective 6: Through 2019, ensure data collection consistency and quality assurance by multiple users.

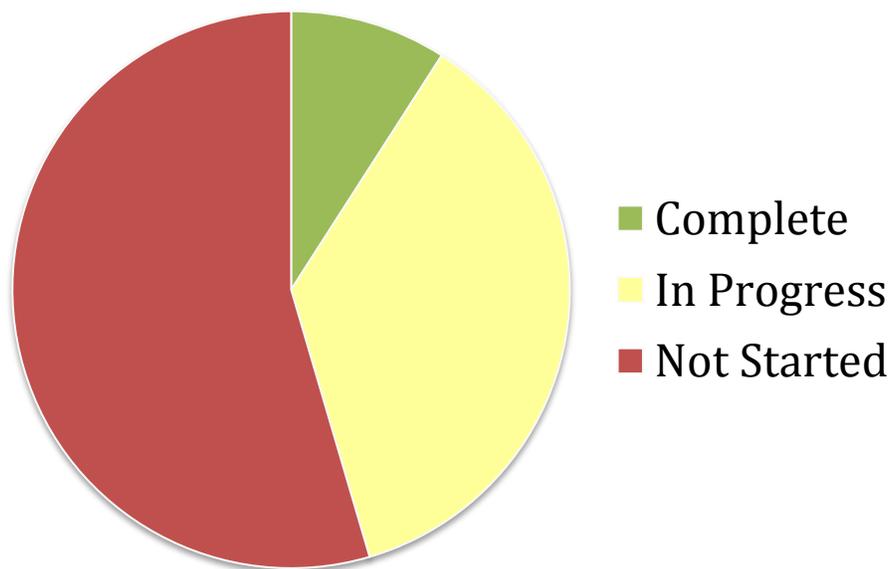
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
<p>1. Establish protocol/methodology to ensure metadata on land-based debris exists and is consistent for the following mediums:</p> <p>a) Open & Nearshore Water b) Shoreline c) Deep & Nearshore Sediments d) Fisheries e) Water Infrastructure (wastewater systems, stormwater, etc.)</p>	<p><u>Coordinator:</u> SUNY Fredonia & University of Michigan</p> <p><u>Partners (corresponding to mediums listed):</u> a) SUNY Fredonia, NOAA MDP, University of MI, University of Wisconsin – Superior, Inland Seas b) Loyola University, University of Waterloo, Alliance for the Great Lakes, NOAA MDP, Inland Seas c) University of Western Ontario, NOAA MDP d) State/Provincial Departments of Natural Resources e) SUNY Fredonia</p>	In Progress	<p>We held an open forum at IAGLR 2015 to discuss current sampling and processing methods used by the community (20-30 attendees). At the forum, we shared strategy to solicit feedback on our proposed "sampling metadata standards" and collected email addresses of those willing to offer feedback.</p> <p>Information will be shared in a google-doc spreadsheet (version 1 mostly complete) for each method protocol.</p>
<p>2. Establish opportunities to share and/or provide training on established protocols across the regional organizations. This may be completed in conjunction with Obj 2.</p>	<p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partners:</u> SUNY Fredonia, NOAA MDP, University of Wisconsin-Superior, NERRs</p>	In Progress	<p>Communication continues with the action strategy team of action 1 above. More opportunities are expected to be identified in April 2016, after action 1 is complete.</p>
<p>3. Identify obstacles within quality assurance of data (ex. volunteer error) and make recommendations on how these obstacles can be resolved or clarified to data users.</p>		Not started	

Goal 2: A science-based and strategic approach is used to guide land-based marine debris policy and management decisions in the Great Lakes.

Action Status:

1 Complete
4 In Progress
6 Not Started

Goal 2 Action Progress



GOAL HIGHLIGHT:

In-Progress: *Present the finalized action plan at relevant local, regional, and national conferences and/or meetings.*

During 2015, information on the Great Lakes Land-based Marine Debris Action Plan was presented at four different venues, reaching approximately 240 policy makers and managers.

Goal 2: A science-based and strategic approach is used to guide land-based marine debris policy and management decisions in the Great Lakes.

Objective 1: By the end of 2017, create a summary document of existing land-based marine debris policies and management systems in the Great Lakes.

Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Inventory and create a summary document on existing policies and best management practices related to land-based marine debris in the Great Lakes.	<p><u>Coordinator:</u> Clean Water Action</p> <p><u>Partners:</u> Keep America Beautiful, American Chemistry Council</p>	In Progress	No new progress to report. Clean Water Action has begun the process of collecting and compiling data on existing litter laws in the Great Lakes' states. Our next step is to convene a call with partner organizations to determine the criteria for analyzing the data.
2. Review developed summary document and identify potential target areas for improvement.	<p><u>Coordinator:</u> Clean Water Action</p> <p><u>Partners:</u> Keep America Beautiful, American Chemistry Council, Alliance for the Great Lakes</p>	Not Started	Work on this action will begin after completion of action 1
3. Share the developed summary with policy makers in the Great Lakes region and make recommendations for policy improvements.	<p><u>Coordinator:</u> Clean Water Action</p> <p><u>Partners:</u> Keep America Beautiful, American Chemistry Council, Alliance for the Great Lakes</p>	Not Started	Work on this action will begin after completion of action 2

<i>Objective 2: Share the developed land-based marine debris action plan with the policy and management communities upon its completion.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Present the finalized action plan at relevant local, regional, and national conferences and/or meetings.	<u>Coordinator:</u> None – captured in annual reporting. <u>Partners:</u> Everyone	In Progress	During this 6-month reporting period, the action plan has been presented at three venues, reaching approximately 215 policy makers and managers.
2. Develop a contact list of policy and management representatives for distribution of the final action plan.	<u>Coordinator:</u> NOAA MDP <u>Partners:</u> State/Provincial management programs (Coastal Zone, DNRs), EPA, Great Lakes Sea Grant Network, NERRs	Complete	Completed in 2014: The NOAA Marine Debris Program, in partnership with state management programs (Coastal Zone Management Offices, Departments of Natural Resources or Environmental Quality), the Environmental Protection Agency, the Great Lakes Sea Grant Network, and the National Estuarine Research Reserves, developed a contact list of relevant policy and management representatives from around the region. These contacts received the Great Lakes Land-based Marine Debris Action Plan via email on August 5, 2014. Partners continue to follow-up with these individuals.
3. Develop a summarized action plan with brief talking points.	<u>Coordinator:</u> Ohio Coastal Management, Great Lakes Sea Grant Network <u>Partners:</u> Michigan Department of Environmental Quality, City of Cleveland Office of Sustainability, Wisconsin Coastal Management	In Progress	Ohio Coastal Management has drafted a land-based marine debris fact sheet to accompany the summarized action plan as it is developed.

<p>4. Create a general presentation or summary slide on final action plan and share with Great Lakes marine debris community for use in outreach to the policy and management communities.</p>	<p><u>Coordinator:</u> Ohio Coastal Management, Great Lakes Sea Grant Network</p> <p><u>Partners:</u> Michigan Department of Environmental Quality, City of Cleveland Office of Sustainability, Wisconsin Coastal Management Program</p>	<p>In Progress</p>	<p>Action coordinators have developed a draft presentation that is currently under review by partners. It is designed to be customizable for any group to use.</p>
<p>5. Work with states, municipalities, and other key constituencies throughout the Great Lakes region to fully understand their trash prevention goals, programs, and perceived needs and barriers to success, and develop collaborative regional projects to address those factors.</p>	<p><u>Coordinator:</u> EPA</p>	<p>Not Started</p>	<p>Work on this action will begin in 2016</p>

Objective 3: Review and prioritize storm water control practices at five municipal districts in the Great Lakes by 2019.

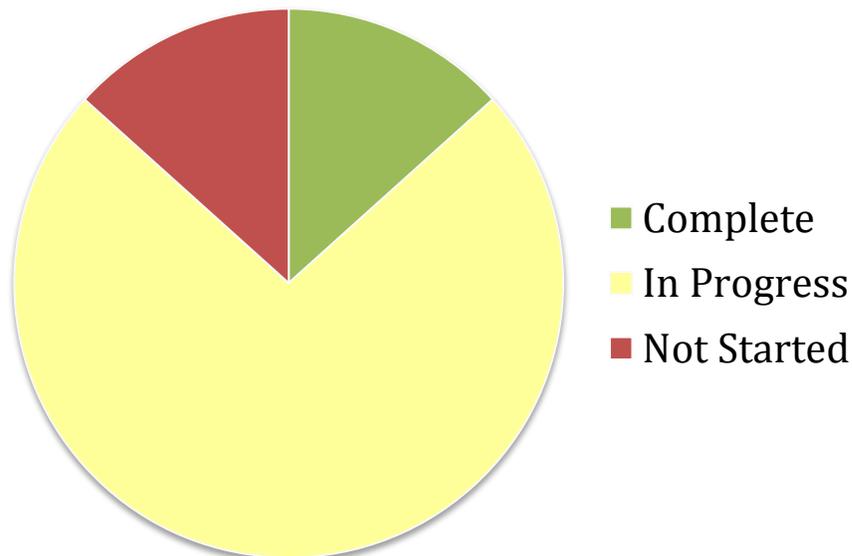
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Engage storm water professionals and the Great Lakes Storm Water Management Institute on land-based marine debris issues in the region.	<p><u>Coordinator:</u> NERRs</p> <p><u>Partners:</u> Coastal Zone Management Offices, Clean Water Action, EPA, Great Lakes Sea Grant Network</p>	Not Started	Once new staff begins at the NERR, we will have a discussion and develop strategies to assess storm water control practices. The issue of Marine Debris has been identified as a presentation and poster theme for the 2016 St. Louis River Summit in order to forward the discussion of marine debris. The Great Lakes Storm Water Management Institute will be invited to our summit in February 2016.
2. Identify existing storm water control practices related to land-based marine debris and identify gaps in programs and/or policy.	<p><u>Coordinator:</u> NERRs</p> <p><u>Partners:</u> Coastal Zone Management Offices, Clean Water Action, EPA, Great Lakes Sea Grant Network</p>	Not Started	Work on this action will begin in 2016
3. Implement tools and incentives to leverage action by various groups.	<p><u>Coordinator:</u> NERRs</p> <p><u>Partners:</u> Coastal Zone Management Offices, Clean Water Action, EPA, Great Lakes Sea Grant Network</p>	Not Started	Work on this action will begin in 2016

Goal 3: Land-based marine debris is prevented and reduced through an educated and involved community.

Action Status:

2 Complete
11 In Progress (1 annual complete)
2 Not Started

Goal 3 Action Progress



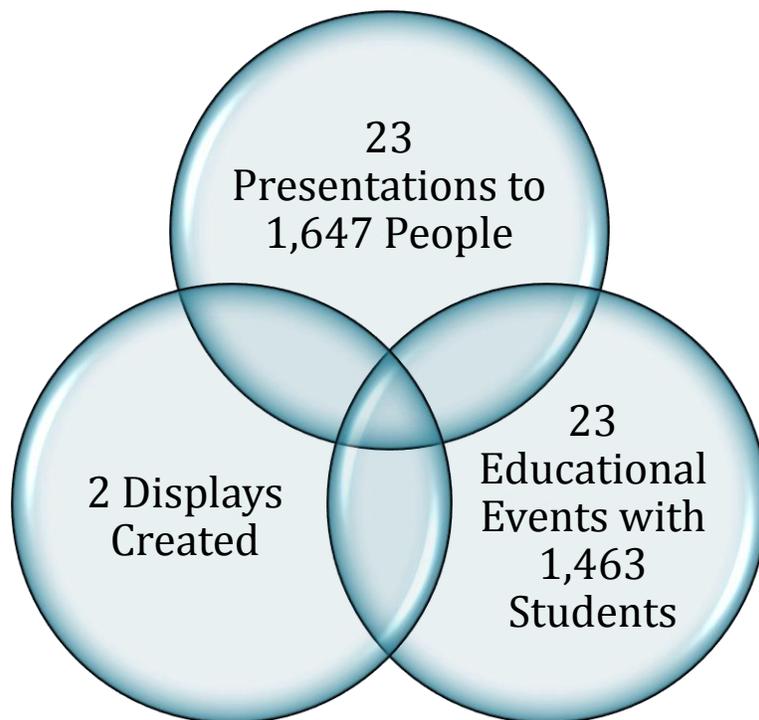
Objective 4: Conduct five informal education activities on land-based marine debris per year, per lake, to the general public.

Ontario: 1
Erie: 22
Huron: ZERO
Michigan: 5
Superior: 7

Objective 5: Conduct five formal education activities on land-based marine debris per year, per lake, to targeted audiences.

Ontario: ZERO
Erie: 16
Huron: ZERO
Michigan: 4
Superior: 2

2015 Outreach Highlights



GOAL HIGHLIGHT:

Complete: *Host a teacher workshop or class on land-based marine debris.*

In partnership with The Ohio State University's Stone Lab on Lake Erie, the NOAA Marine Debris Program and Ohio Sea Grant held a free three-day workshop on marine debris for teachers and informal educators on June 8-10, 2015. Thirteen educators experienced a mix of classroom curriculum and field activities, including using manta net trawls and conducting sample analysis with Dr. Rios Mendoza, and participating in a beach cleanup with the Alliance for the Great Lakes. Pennsylvania Sea Grant and the Center for Great Lakes Literacy also held a teacher training for ten teachers at Tom Ridge Environmental Center in Erie, PA.



Photo Credit: NOAA

Goal 3: Land-based marine debris is prevented and reduced through an educated and involved community.			
<i>Objective 1: By the beginning of 2016, conduct a needs assessment for future education efforts on land-based marine debris in the Great Lakes.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Identify target audiences and potential new partners for future education efforts.	<u>Coordinator:</u> Alliance for the Great Lakes	Complete	In March and April, the Alliance interviewed all partners listed in goal 3 (with the exception of those that did not respond to our outreach). Through that initial outreach we determined that the target audiences that partners want to reach varies between formal education and public education. To narrow the focus, it was decided that for this particular objective, the focus would be on formal education. Informal/public education would be the focus of Objective 2 under goal 3.
2. Inventory educational resources that are currently available and identify gaps in content and style/type.	<u>Coordinator:</u> Alliance for the Great Lakes <u>Partners:</u> Great Lakes Sea Grant Network, NOAA MDP, NERRs, Coastal Training Program, City of Cleveland Office of Sustainability, Inland Seas, Shedd Aquarium	In Progress	Formal educational materials have been compiled and organized in an Excel spreadsheet. In addition, related materials have been compiled and placed in folders in a Dropbox folder that is being shared with partners. We developed a rubric to aid in reviewing materials and will be asking multiple partners of this objective to assist with the review. We will have an online survey form in which they can compile their comments.
3. Create new or adapt existing educational materials to fill gaps identified above.	<u>Coordinator:</u> Alliance for the Great Lakes <u>Partners:</u> Great Lakes Sea Grant Network, NOAA MDP, NERRs, WI Coastal Management Program	Not Started	Work on this action will begin in January 2016, or following the completion of action 2.

Objective 2: By the end of 2016, launch at least one awareness campaign for Great Lakes communities regarding land-based marine debris.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Identify and review existing awareness campaigns that could be leveraged.	<u>Coordinator:</u> Keep America Beautiful <u>Partner:</u> Alliance for the Great Lakes, Inland Seas	In Progress	We completed a list of anti-littering and awareness-building campaigns. We have established a small group to brainstorm messaging ideas and are continuing to seek input from our affiliate network and others.
2. Engage a marketing expert to assist in the development of a campaign.	<u>Coordinators:</u> City of Cleveland <u>Partners:</u> Alliance for the Great Lakes, American Chemistry Council, Great Lakes Sea Grant Network, Keep America Beautiful, Hi-Cone, Inland Seas	In Progress	Funding has been secured through the NOAA Marine Debris Program and the City of Cleveland. An RFP for a Social Marketing Expert to prepare, develop, and execute a Plastic Marine Debris Social Marketing Campaign was released on Monday, November 2nd, 2015.
Objective 3: By 2019, develop a social marketing plan, including 10 communication products to address land-based marine debris in the Great Lakes.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Identify and review effectiveness and impact of existing social marketing programs on littering behavior.	<u>Coordinators:</u> Keep America Beautiful & Alliance for the Great Lakes <u>Partners:</u> Great Lakes Sea Grant Network, Clean Water Action, NERRs	In Progress	We are compiling a list of social marketing campaigns for review. We will continue to add to and refine this list, seeking additional input from our contacts, affiliates, and others, particularly those connected with water. A project intern will assist.
2. Create a brand with localized and targeted messages based on social science research on barriers and benefits. Social science research may include public-opinion focus groups and value identification.	<u>Coordinator:</u> City of Cleveland, Alliance for the Great Lakes	In Progress	This action will follow the work the City of Cleveland is doing under Objective 2. An RFP for a Social Marketing Expert was released on Monday, November 2nd, 2015. As part of the campaign development, the expert will research barriers to behavior change.

Objective 4: Conduct five informal education activities on land-based marine debris per year, per lake, to the general public.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Engage the Beach Ambassador Program as well as museums and/or aquariums on educational activities related to land-based marine debris in the Great Lakes.	<p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partner:</u> Old Woman Creek NERR</p>	In Progress	<p>The "Plastic Waters" exhibit created by the 5 Gyres, with additional pieces developed in partnership with the Alliance, is on display at Aquarium of Niagara in Buffalo. Alliance staff helped with the setup, including a speaker series called "Conservation Conversations." The series is monthly until January. The Alliance is also in discussion with the Aquarium in Cleveland about hosting the exhibit in the future.</p> <p>"Current Collections" (an art sculpture funded by NOAA and made from reclaimed and recycled plastics) was one of the exhibits at ArtPrize 2015 in Grand Rapids, MI. Alliance staff and Groundswell staff spoke with visitors about marine debris and its impacts in our waters. This exhibit was also highlighted in local press, interviews, and on social media.</p>
2. Organize an annual Boat Float in Lake Erie.	<p><u>Coordinator:</u> City of Cleveland Office of Sustainability</p> <p><u>Partners:</u> Cleveland Metroparks, Cleveland Museum of Natural History</p>	In Progress; 2014 & 2015 Complete	<p>The 7th Annual Great Lake Erie Boat Float was held September 12th at Edgewater Park Beach with ~100 participants and spectators. Due to inclement weather, no boats were allowed in the water. Thirteen boats were displayed and judged. Judges were: Stephen Love (Adopt-A-Beach Leader), Jennifer Fay (President of Retap North America), and Jan Rybka (District Admin for the Cuyahoga Soil and Water Conservation District). Photos from the event can be found at http://www.ldempsey.com/643707/lake-erie-boat-float-2015/.</p>

3. Stop in and present to coastal communities during research cruises [Presentations to the public].	<u>Coordinator:</u> None – captured in annual reporting. <u>Partners:</u> All researchers	In Progress	Twenty-three presentations to the general public were given during this reporting period, reaching approximately 1,647 people.
4. Create land-based marine debris educational displays at public venues (i.e. state parks, museums, marinas, universities, etc.). The displays may be mobile in nature to be easily shared across the region.	<u>Coordinator:</u> None – captured in annual reporting. <u>Partners:</u> Everyone	In Progress	Two displays were developed during this reporting period: one in Wisconsin for Earth Day, and the Plastic Waters traveling exhibit in Buffalo, NY and Erie, PA.
5. Encourage large-scale public events (i.e. conferences, etc.) to be “zero-waste.”	<u>Coordinators:</u> Keep America Beautiful & City of Cleveland Office of Sustainability	In Progress	The City of Cleveland Office of Sustainability assisted in several zero waste events and also held a Zero Waste Event Planning Workshop in partnership with the Cuyahoga County Solid Waste District. Events included: 2015 Sustainable Cleveland Summit (Sept. 16-17; 550 people); Freshoberfest (Sept. 18; 100 people); Citywide Potluck (Sept 19; 75 people); Cleveland Museum of Natural History Conservation Symposium (Sept. 11; 275 people). Keep America Beautiful also has a draft Zero Waste Event plan that will be developed further over the next year, including examples of projects.
<i>Objective 5: Conduct five formal education activities on land-based marine debris per year, per lake, to targeted audiences.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Host a regional webinar on land-based marine debris for education/outreach professionals.	<u>Coordinators:</u> NOAA MDP & Alliance for the Great Lakes <u>Partners:</u> Great Lakes Sea Grant Network	Not Started	Work on this action will begin in January 2016

<p>2. Host a teacher workshop or class on land-based marine debris.</p>	<p><u>Coordinators:</u> Great Lakes Sea Grant Network, NOAA MDP</p> <p><u>Partner:</u> Alliance for the Great Lakes, Old Woman Creek NERR</p>	<p>Complete</p>	<p>In partnership with The Ohio State University's Stone Lab on Lake Erie, the NOAA MDP and Ohio Sea Grant held a free three-day workshop on marine debris for teachers and informal educators on June 8-10, 2015. Thirteen educators experienced a mix of classroom curriculum and field activities, including using manta net trawls and conducting sample analysis with Dr. Rios Mendoza, as well as participating in a beach cleanup with the Alliance for the Great Lakes. Pennsylvania Sea Grant and the Center for Great Lakes Literacy also held a teacher training for ten teachers at Tom Ridge Environmental Center in Erie, PA.</p>
<p>3. Conduct land-based marine debris educational activities with students of all ages in the Great Lakes.</p>	<p><u>Coordinator:</u> None – captured in annual reporting.</p> <p><u>Partners:</u> Everyone</p>	<p>In Progress</p>	<p>For this reporting period, approximately 23 educational activities/events were held. Approximately 1,463 students of all ages were reached through these activities.</p>

Goal 4: The impacts of land-based marine debris are reduced through removal and tracking efforts.

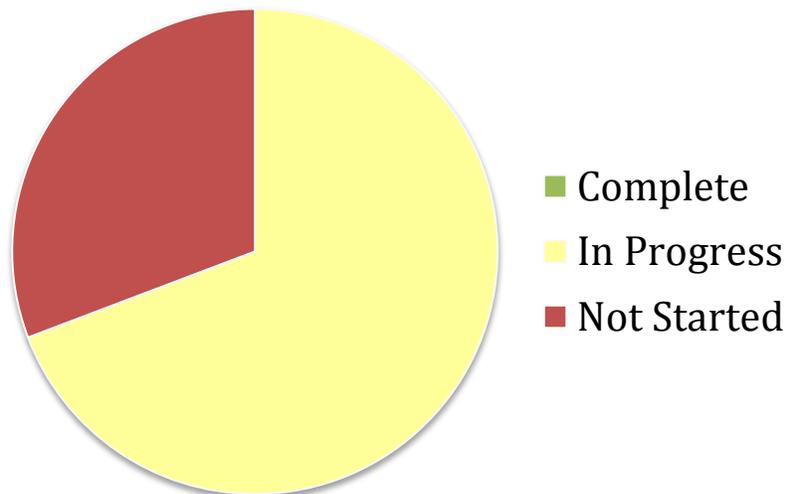
Action Status:

Zero Complete

8 In Progress

5 Not Started

Goal 4 Action Progress



GOAL HIGHLIGHT:

In-Progress: *Identify funding opportunities and land-based marine debris removal projects throughout the region.*

Action plan participants identified the following sources of funding for the removal of land-based marine debris. This list will continue to grow as new opportunities are identified.

Identified Funding Opportunity for REMOVAL of land-based marine debris	Link to funding opportunity
Boat US Foundation Grassroots Grant	http://www.boatus.org/grants/faq.asp
Boat US Foundation Cigarette Litter Prevention Program for Marinas	http://www.boatus.org/cigarette-litter/
West Marine Blue Future Grants & Sponsorships	http://www.westmarine.com/BlueFuture/Grants-Sponsorships
Ohio EPA Recycling and Litter Prevention Grants	http://epa.ohio.gov/ocapp/grants.aspx
NOAA Marine Debris Removal Grant	http://marinedebris.noaa.gov/about-us/funding
Coca-Cola Foundation: Community Requests	http://www.coca-colacompany.com/our-company/community-requests-guidelines-application
Coastal Management Program Small Grants	See state coastal management program websites
Five Star Urban Waters Restoration Grant	www.nfwf.org/fivestar

Goal 4: The impacts of land-based marine debris are reduced through removal and tracking efforts.

Objective 1: *By 2019, bi-nationally record and report count and weight (in tons) of land-based marine debris removed from Great Lakes' shorelines and watersheds by volunteer programs.*

Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Investigate Canadian volunteer program reporting mechanisms and see how they align with U.S. efforts.	<p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partners:</u> Surfrider, Ocean Conservancy</p>	In Progress	The Great Canadian Cleanup, part of the International Coastal Cleanup, is organized by the Vancouver Aquarium. Their data collection forms align with the Ocean Conservancy's forms and are in the same format the Alliance uses for the Adopt-a-Beach program. In the last several months, we have learned from the Aquarium staff that they are opening up their website and database for cleanups on a year-round basis. The Aquarium has an office in Toronto that coordinates events in the Great Lakes. The groups that we are aware of that are doing cleanups in Canada are coordinating with the Aquarium.
2. Identify centralized location that will coordinate and host volunteer coastal cleanup data.	<p><u>Coordinator:</u> Alliance for the Great Lakes</p>	Not Started	Work on this action will begin in June 2016

Objective 2: *By 2019, develop and publish recommendations for best practices for removing land-based marine debris.*

Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Investigate existing removal methods for land-based marine debris and analyze for similarities as well as benefits and challenges.	<p><u>Coordinator:</u> NERRs</p>	In Progress	This action has been a discussion between LSNERR and UWS regarding funding opportunities to look at this issue.

<p>2. Develop or adapt best management practices (BMPs) to target specific environments or debris types.</p>	<p><u>Coordinator:</u> Great Lakes Sea Grant Network</p>	<p>In Progress</p>	<p>Wisconsin Sea Grant (WISG) provided six monofilament recycling bins to the St. Louis River Alliance in Duluth, MN. Bins were adopted by local residents who will remove and recycle the fishing line. This story led to a request by a fishing club in Green Bay, who was also interested in participating. http://bit.ly/1TUULMo Ohio Sea Grant (OSG) continues to assist in the promotion of the personal fishing line recycling program led by Partners for Clean Streams. A total of 222 people were educated about personal fishing line recycling in 2015, and 1 full-size monofilament recycling bin and 27 personal recycling bins were distributed by OSG.</p>
<p>3. Incorporate land-based marine debris BMPs into existing guides (ex. Clean Marina).</p>	<p><u>Coordinator:</u> Great Lakes Sea Grant Network <u>Partner:</u> WI Coastal Management Program</p>	<p>In Progress</p>	<p>The topic of marine debris is being incorporated into outreach talks given by Ohio Sea Grant (OSG) staff, including using sample jars of items collected from cleanup efforts as hands-on examples. An emphasis is placed on reduction during these education and outreach sessions. A Microplastics Nearpod presentation (NPP) was created by OSG staff based on the Microplastics presentation given by Maia McGuire at the 2015 NMEA conference in Rhode Island. The NPP has been published in the Nearpod store in August 2015 and is available to teachers worldwide as a free download.</p>

4. Share BMP recommendations with stakeholders.	<u>Coordinator:</u> Great Lakes Sea Grant Network	In Progress	Ohio Sea Grant is beginning outreach and education efforts aimed at teaching high school students about marine debris and helping them to complete a beach cleanup stewardship project. This will serve as a pilot project with the hope of it becoming a program offered to high schools every fall. Students will fill out Alliance for the Great Lakes debris data collection cards and their efforts will contribute to the International Coastal Cleanup database, since it is occurring in September.
Objective 3: <i>Within five years, target removal efforts towards land-based marine debris items that are expected to have the greatest impact or which are most abundant in number.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Analyze existing cleanup data to identify land-based marine debris types, quantities by type, and impact. Reports may be separated by geography due to variations in data.	<u>Coordinator:</u> Alliance for the Great Lakes <u>Partner:</u> Ocean Conservancy	In Progress	Loyola University analyzed Adopt-a-Beach results from 5 different Lake Michigan beaches. The report was recently published and logged in the Journal of Great Lakes Research. The results indicate that the majority of debris on those beaches is coming from beach/coastal users. Additional analysis of 203 beaches along the Lake Michigan coast has found that fishing beaches and proximity to a river are not main drivers of the abundance or density of litter. Loyola will continue to compile results and may formalize them in a peer-reviewed paper, as well as continuing to investigate additional questions.
2. Partner with industry, manufacturers, and packaging companies to create targeted removal efforts (ex. A large retail company like Coca-Cola could participate in a local cleanup).	<u>Coordinators:</u> Hi-Cone, Illinois Tool Works <u>Partners:</u> Leave No Trace, Shedd Aquarium	In Progress	Hi-Cone met with Leave No Trace, an environmental partner, to gain their commitment to integrate marine debris education into their program and to join us in cleanups or events with our customers. The Alliance for the Great Lakes also expressed interest.

Objective 4: Create a natural disaster preparedness plan (by state or lake) for land-based marine debris within five years.			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Review lessons-learned from Hurricane Sandy response.	<u>Coordinator:</u> NOAA MDP <u>Partners:</u> Alliance for the Great Lakes, Ohio Department of Natural Resources/Ohio Emergency Management Association, Environment Canada	Not Started	Work on this action will begin in 2016
2. Review preparedness plans from other regions and industry partners.	<u>Coordinator:</u> NOAA MDP <u>Partner:</u> Environment Canada	Not Started	Work on this action will begin in 2016
3. Engage the U.S. Coast Guard, FEMA, and the Canadian equivalents on land-based marine debris issues in the region as well as the creation of the preparedness plans.	<u>Coordinator:</u> NOAA MDP <u>Partner:</u> Environment Canada	Not Started	Work on this action will begin in 2016

<i>Objective 5: By 2019, remove 200 tons of land-based marine debris from Great Lakes environments.</i>			
Action Strategies	Coordinating & Partner Organizations	Status	Progress Description
1. Understand the current baseline of land-based marine debris removed by volunteers in the region. Report on these values.	<p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partner:</u> Ocean Conservancy</p>	In Progress	<p>In May 2016, we will provide values for the total pounds of debris removed from the Great Lakes through volunteer programs in 2015. For 2014 results, we reached out to all groups that are involved in cleanups in the U.S. and Canada in the Great Lakes. We received metrics from all efforts except Canada. Total pounds (without Canada data) for 2014= 76,586 or 38.3 tons.</p> <p>Total pounds per state (2014): IL: 15,327 IN: 5,860 MI: 9,207 MN: 672 NY: 10,606 OH: 22,219 PA: 8,445 WI: 4,250</p>
2. Identify funding opportunities and potential land-based marine debris removal projects throughout the region.	<p><u>Coordinator:</u> None – captured in annual reporting.</p> <p><u>Partners:</u> Everyone</p>	In Progress	Participants to the action plan have identified 8 funding opportunities for marine debris removal projects. This list will continue to grow as new opportunities are identified.



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