



The Great Lakes Marine Debris Action Plan: 2017 Action Summary Report

NOAA Marine Debris Program
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
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The Great Lakes Land-based Marine Debris Action Plan

2017 Action Summary Report & Mid-Plan Review



**The Great Lakes Land-based Marine Debris
Action Plan**

NOAA Marine Debris Program
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Technical Memorandum NOS-OR&R-49
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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 that are to be completed within five years (2014-2019). As indicated in the monitoring of the plan, there is to be an Action Summary Report completed each calendar year. This Action Summary Report highlights progress made in 2017.

To date, contributors to the Great Lakes Land-based Marine Debris Action Plan began work on 29 actions and successfully completed 17 actions. Six actions will be started in the future and one has been removed during review.

In 2017, the following six actions were completed:

- 1) Inventory and create a summary document on existing policies and best management practices related to land-based marine debris in the Great Lakes (2.1.1).
- 2) Inventory educational resources that are currently available, identify gaps in content, and style/type (3.1.2).
- 3) Identify and review existing awareness campaigns that could be leveraged (3.2.1).
- 4) Identify and review effectiveness and impact of existing social marketing programs on littering behavior (3.3.1).
- 5) 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 (3.3.2).
- 6) 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 (3.4.1).

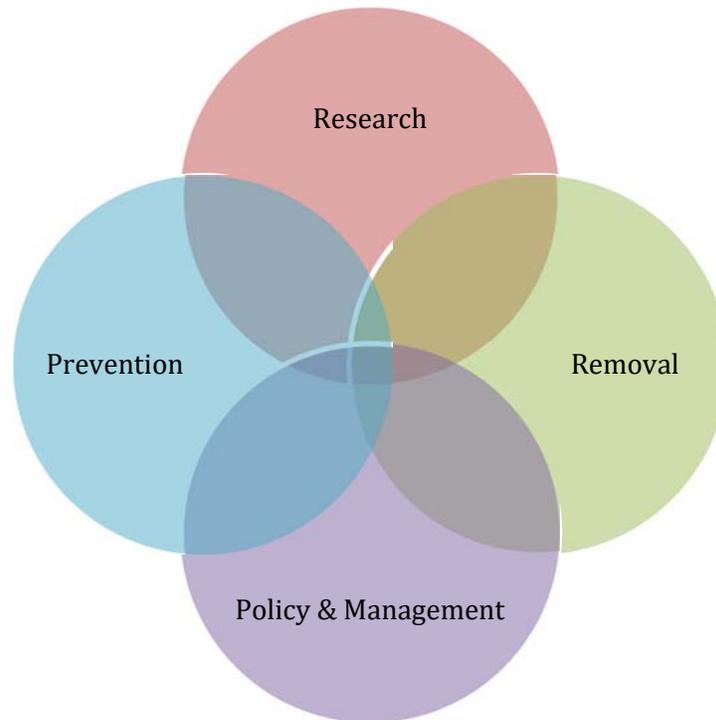
Semi-annual check-ins for the action plan were held on May 23 and November 14, 2017. During the webinars, participants heard and shared a summary of action progress to date. Specifically, summary information was presented for each of the four goals in the action plan, completed actions were highlighted in presentations, and other high-level updates were given from action coordinators. The webinars ended with an open discussion of feedback on reporting, communications, and challenges.

A mid-plan review was completed in 2017. The workshop was held on February 28th – March 1st at the Tom Ridge Environmental Center in Erie, PA. Approximately 25 partners from around the region worked to review the status of the Great Lakes Land-based Marine Debris Action Plan. The workshop was successful in identifying successes, challenges, and revisions to the action plan to date. Revisions, challenges, and proposed solutions are captured within the goal sections of this document.

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

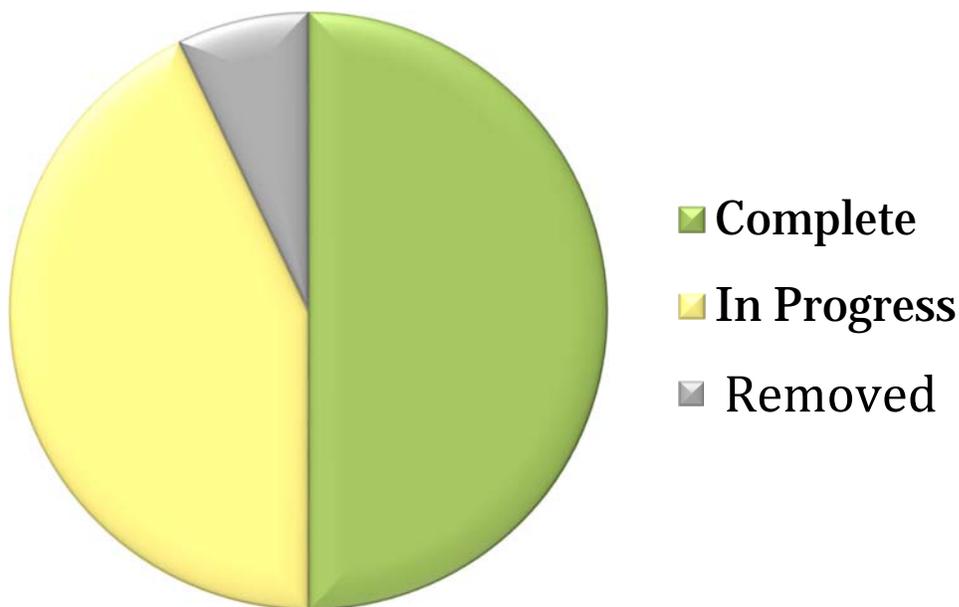


Goal 1: Knowledge gaps are identified and filled through research and monitoring of land-based marine debris.

Action Status:

7 Complete
6 In-Progress
1 Removed

Goal 1 Action Progress



GOAL HIGHLIGHT

Complete: *Objective 1: By the end of 2016, develop a platform for long-term collaboration on Great Lakes marine debris research (Actions 1.1.1 & 1.1.2).*

The NOAA Marine Debris Program has completed the development of a regional web- this tool provides the opportunity for all of those engaged in the regional marine debris format for the platform, and provided input on the prioritization of features. A contractor

was hired and the site is available here: <https://greatlakes-mdc.diver.orr.noaa.gov/>. This

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

Objective 1: *By the end of 2016, develop a platform for long-term collaboration on Great Lakes marine debris research.*

| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
|--|---|----------|---|-----------------|
| 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> | Complete | NOAA MDP has finished the development of a regional web-platform for the Great Lakes marine debris community. Stakeholders submitted ideas/desires for the platform, and provided input on the prioritization of features. A contractor was hired and the site is available: https://greatlakes-mdc.diver.orr.noaa.gov/ | N/A - Complete |
| 2. Once needs analysis is complete, examine existing platforms to meet those needs. | <p>Coordinator: NOAA MDP</p> | Complete | NOAA MDP has finished the development of a regional web-platform for the Great Lakes marine debris community. NOAA MDP met with the developers and manager of DIVER (Data Integration Visualization Exploration and Reporting) and have concluded that this platform was a good fit based on desires/requirements of regional community that were identified in action 1.1.1. The portal site is: https://greatlakes-mdc.diver.orr.noaa.gov/ | N/A - Complete |

| <i>Objective 2: By 2016, convene researchers to foster partnerships and collaboration.</i> | | | | |
|---|---|----------|--|-----------------|
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 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> | Complete | The Alliance was one of the partners for the first Great Lakes Day on August 20th coordinated by the eXXpedition. As a partner, we connected Inland Seas Education Association with the eXXpedition planners, and as a result, Inland Seas was a lead student boat. In addition, the eXXpedition planners connected Inland Seas with an educational program in Toronto Brigantine that also participated in GLs Day and used Inland Seas shipboard curriculum for microbeads. | N/A - Complete |
| 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, 2016, and 2017 for a session on marine debris. Sarah Zack (IISG), Carolyn Foley (IISG), and Melissa Duhaime (University of Michigan) hosted the 2017 session: "Plastics Research in the Great Lakes: Identifying Gaps and Facilitating Collaboration." It included a period of facilitated discussion, with a survey. Session details and findings from the survey/discussion can be found in the | N/A - Complete |

| | | | Summary Report, available at: http://iiseagrant.org/catalog/glh/microplastics.php . During the 2016 and 2017 Sea Grant Week, state Sea Grant representatives hosted a workshop on emerging contaminants, which included microplastics as one of three topics. | |
|---|--|----------|--|-----------------|
| Objective 3: <i>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.</i> | | | | |
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 1. Publish synthesis paper on plastic marine debris research in the Great Lakes. | <u>Coordinator:</u> University of Waterloo | 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) | N/A - Complete |
| 2. Based on results of synthesis paper, perform a gap analysis to identify research needs in the region. | <u>Coordinator:</u> NOAA MDP <u>Partners:</u> University of Waterloo, University of Western Ontario, University of Michigan, Loyola University, SUNY Fredonia, University of Wisconsin-Superior, Environment Canada | Complete | The International Joint Commission held a microplastics workshop in April 2016. At this workshop, research gaps were identified for this particular debris type. Additional analysis will be needed to identify gaps in other types of land-based marine debris. IJC produced a final workshop report (including prioritized research needs) located here: http://www.ijc.org/files/tinymce/uploaded/Microplastics in the Great Lakes Workshop Report FINAL September14-2016.pdf | N/A - Complete |

| Objective 4: Through 2019, engage Great Lakes management communities to prioritize and foster implementation of relevant research topics. | | | | |
|--|---|-------------|--|---|
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 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); Alliance for the Great Lakes; Keep America Beautiful</p> | In Progress | Participation in the Plastic Working Group (PWG) for Cleveland. Through the PWG, Ohio Sea Grant has broadened the stakeholders it has worked with on the issue of plastic debris, shared education ideas, and learned of new ideas from partners involved in the PWG. | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Involving under-represented target audiences relevant to plastic land-based marine debris (e.g. inner-city Cleveland) - Ohio Sea Grant, Old Woman Creek NERR</p> <p><u>Challenge:</u> Difficulty framing conversation to certain relevant audiences.</p> <p><u>Potential Solution:</u> Work with reps from communities to communicate more effectively. Involve other partners to broaden scope.</p> |
| 2. Through established communication channels, work with management stakeholders to develop a list of research questions that are of interest | <p><u>Coordinator:</u> Great Lakes Sea Grant Network</p> <p><u>Partner:</u> NERRs; Alliance for the Great Lakes; Keep America Beautiful</p> | In Progress | Based on results from the single-use social marketing campaign work conducted in Cleveland, OH and further exploration into the needs of the community it has been determined that more information is needed about the use of single-use plastic bags and the effectiveness of reminder strategies. Therefore, Scott Hardy and Jill Bartolotta of Ohio Sea Grant have submitted a proposal to | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> OH Sea Grant to further analyze research needs based on results from single-use plastic item survey.</p> <p><u>Challenge:</u> Reaching correct audiences</p> |

| to the Great Lakes management community. | | | the NOAA Marine Debris Program to conduct a study to determine the effectiveness of several recommendations identified in the single-use plastic survey. Plastic bags will be the focus for this study. | <u>Potential Solution:</u> Utilize working group from NEOH Plastics Reduction Symposium |
|--|---|----------|--|---|
| Objective 5: <i>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.</i> | | | | |
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 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 | Complete | The International Joint Commission held a microplastics workshop in April 2016. At this workshop, research gaps were identified for this particular debris type. Additional analysis will be needed to identify gaps in other types of land-based marine debris. IJC produced a final workshop report (including prioritized research needs) located here: http://www.ijc.org/files/tinymce/uploaded/Microplastics in the Great Lakes Workshop Report FINAL September14-2016.pdf | N/A - Complete |

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| <p>2. Identify funding sources for land-based marine debris research, both current and future.</p> | <p><u>Coordinator:</u> University of Waterloo; University of Michigan</p> <p><u>Partner:</u> Great Lakes Sea Grant Network, University of Wisconsin-Superior</p> | <p>In Progress</p> | <p>No Report for 2017 May 2016 I nfo: Melissa Duhaime (University of Michigan), along with other colleagues, took part in Sea Grant training workshop on Microplastics (NOAA GLERL, April 2016). Sea Grant affiliates will request microplastics be stated as priority research item in next Sea Grant RPFs. One step forward is that Sea Grant has been identified as a potential funding source.</p> | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> U.S. research funding sources need to be compiled, beyond Sea Grant RFPs - Univ. of Michigan to complete, with help from partners; Canadian potential funding sources need to be identified - University of Waterloo.</p> <p><u>Challenge:</u> Beyond participating in meetings such as International Joint Commission and conferences such as IAGLR, actual research funding sources have been difficult to identify and search.</p> <p><u>Potential Solution:</u> Canadian options include: NSERC funding sources (Strategic Project Networks), Global Water Futures program (Univ of Saskatchewan together with Univ of Waterloo and several other partner universities), universities to partner with government?</p> |
| <p>3. Create and send a bi-national letter to inform potential funding officials of regional research</p> | <p><u>Coordinator:</u> University of Waterloo; University of Michigan</p> | <p>In Progress</p> | <p>No Report for 2017 May 2016 I nfo: Melissa Duhaime (University of Michigan) and Hans Dürr (University of Waterloo), along with other colleagues, took part in</p> | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> Coordinators to draft letter, based on recommendations from IJC</p> |

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| <p>needs for land-based marine debris.</p> | | | <p>International Joint Commission workshop on Microplastics. The goal of the workshop was to establish research gaps and priorities, which was accomplished. The IJC will now formalize these statements to present to US and Canadian governments to encourage addressing these points by funding basic research. This report could also serve as a template for further dissemination.</p> | <p>workshop last year, plus further input.</p> <p><u>Challenge:</u> It remains challenging to find the time with the currently very limited funding.</p> <p><u>Potential Solution:</u> Coordinators need to reconnect with each other and respective governments (federal and state/provincial); it is generally not hard to convince people of the necessity for further action</p> |
|--|--|--|--|--|

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

| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
|---|---|--------------------|---|---|
| <p>1. Establish protocol/methodology to ensure standardized metadata on land-based debris exists and is consistent for the following mediums:</p> | <p><u>Coordinator:</u> SUNY Fredonia & University of Michigan</p> <p><u>Partners (corresponding to mediums listed):</u></p> | <p>In Progress</p> | <p>The first two steps in our revised timeline (provided below) have been completed. We have made significant progress on step 3.</p> <p>1. Compile people's methods (complete)</p> | <p><u>Estimated completion:</u> 2017</p> <p><u>Next Steps:</u> Coordinators have developed meta-data spreadsheets per medium and will review and then send out to other researchers. The goal is to have researchers use the meta-data spreadsheets as they collect</p> |

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|--|---|--|--|--|
| a) Open & Nearshore Water | a) SUNY Fredonia, NOAA MDP, University of MI, University of Wisconsin Superior, Inland Seas | | <p>2. Review methods & identify the steps in the protocols where metadata collection is crucial (complete)</p> <p>3. Develop optimized/recommended metadata for each sampling media (timeline TBD). Modeled after MIGS/MIMS (especially the metadata requirements for environmental sampling component):</p> <p>http://www.nature.com/nbt/journal/v26/n5/full/nbt1360.html</p> <p>4. Share drafts of optimized/recommended metadata collection forms for various media types (timeline TBD)</p> <p>5. Request various research personnel use the form to 'report' some of their samples to us to ensure that we have accounted for all crucial metadata (timeline TBD)</p> <p>6. Revise/amend metadata forms based on feedback from researchers (timeline TBD)</p> <p>7. Submit final recommendations for metadata collection to Action Plan (timeline TBD)</p> | <p>samples in 2017 and report back on any meta-data items that may have been missed.</p> <p><u>Challenge:</u> Making progress when we are not face-to-face, given all of the other work obligations. IAGLR reluctant to incorporate discussion format into sessions. Funding remains a challenge.</p> <p><u>Potential Solution:</u> Coordinators will schedule another in-person work session to finalize spreadsheets.</p> <p><u>Other notes:</u> Coordinators decided what was important was not to establish protocols or methodology (as there are multiple ways to get useful data and different groups have access to different capabilities), but rather to focus on the meta-data so that once data is obtained, it can be more easily harmonized. This is in-line with recent discussions at the international level.</p> |
| b) Shoreline | b) Loyola University, University of Waterloo, Alliance for the Great Lakes, NOAA MDP, Inland Seas | | | |
| c) Deep & Nearshore Sediments | c) University of Western Ontario, NOAA MDP | | | |
| d) Fisheries | d) State/Provincial Departments of Natural Resources | | | |
| e) Water Infrastructure (wastewater systems, stormwater, etc.) | e) SUNY Fredonia | | | |

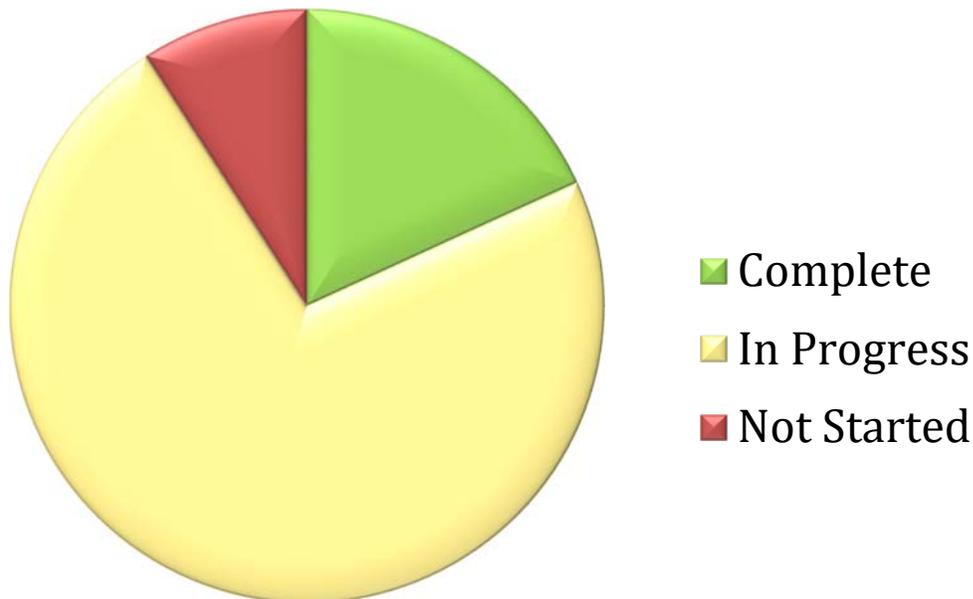
| | | | | |
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| <p>2. Establish opportunities to share and/or provide training on established protocols standardized meta-data across the regional organizations. This may be completed in conjunction with Obj 2.</p> | <p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partners:</u> SUNY Fredonia, NOAA MDP, University of Wisconsin-Superior, NERRs</p> | <p>In Progress</p> | <p>No Report for 2017. Needs new coordinator No progress in 2017.</p> | <p><u>Estimated completion:</u> ??</p> <p><u>Next Steps:</u> Research obtained in 1.6.1 will be communicated by coordinators and partners via IAGLR, potential webinars, and internationally at the 6IMDC.</p> <p><u>Challenge:</u> This action strategy has evolved based on the changes made to 1.6.1. Alliance for the Great Lakes involvement may no longer be relevant.</p> <p><u>Potential Solution:</u> Alliance to contact partners to determine new coordinator.</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> | <p><u>Coordinator:</u> Keep America Beautiful</p> | <p>Not started</p> | <p>May 2016 info: KAB has recently volunteered to lead this action.</p> | <p>This action has been resolved and incorporated into 1.6.1, due to recent changes in that action strategy.</p> |

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:

2 Complete
8 In Progress
1 Not Started

Goal 2 Action Progress



GOAL HIGHLIGHT:

Complete: *Inventory and create a summary document on existing policies and best management practices related to land-based marine debris in the Great Lakes (2.1.1).*

During the mid-plan review, the Alliance for the Great Lakes and Keep America Beautiful volunteered to be new coordinators on the actions under Objective 1. After reviewing policies from other regions, a list of categories and model examples were created and reviewed. Based on this list, outreach began across the Great Lakes basin to find relevant

regional examples. The idea of a broad survey was eliminated due to logistical and practical concerns, and instead targeted outreach through the Great Lakes Land-based Marine Debris Action Plan list serve and other Great Lakes coalitions (such as the Healing Our Waters coalition) led to the creation of a list of communities that have implemented policies. Examples of these policies included bag bans/fees, bans on the use of single use plastics in government facilities, public outreach campaigns, and social marketing campaigns. To date, few examples of local, county, or state level policies aimed at reducing marine debris appear to exist in the Great Lakes. Case studies of these examples have been included in an internal memo by the Alliance for the Great Lakes that will inform public outreach materials in the future.

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 | 2017 Progress Description | Mid-Plan Review |
|--|---|-----------------|--|---|
| <p>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> | <p><u>Coordinator:</u> Clean Water Action Alliance Alliance for the Great Lakes, Keep America Beautiful</p> <p><u>Partners:</u> Keep America Beautiful, American Chemistry Council, NERRs</p> | <p>Complete</p> | <p>After reviewing policies from other regions, a list of categories and examples of policies model was created. Based on this list, outreach began across the Great Lakes basin to find examples. After the idea of a board survey was eliminated due to logistical and practical concerns, targeted outreach through the GLMDAP list serve and other Great Lakes coalitions (such as the Healing Our Waters coalition) lead to creation of a list of communities that have implemented policies. Examples of these policies included bag bans/fees, bans on the use of single-use plastics in government facilities, public outreach campaigns, and social marketing campaigns. To date, few examples of local, county, or state level policies aimed at reducing marine debris appear to exist in the Great Lakes. Case studies of these examples have been written up as an internal memo by the Alliance for the Great Lakes that will inform public outreach materials in the upcoming future.</p> | <p><u>Estimated completion:</u> 2017</p> <p><u>Next Steps:</u> Alliance and Keep America Beautiful (KAB) volunteered to be new coordinators and will assess action strategy. KAB already created "litter log" and enforcement guide.</p> <p><u>Challenge:</u> BMPs identified, however, implementation depends on behavior change and local decisions.</p> <p><u>Potential Solution:</u> develop palatable solutions, fact sheets, and presentations for different audiences.</p> |

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| <p>2. Review developed summary document and identify potential target areas for improvement.</p> | <p><u>Coordinator:</u> Clean Water Action Alliance for the Great Lakes, Keep America Beautiful</p> <p><u>Partners:</u> Keep America Beautiful, American Chemistry Council, NERRs</p> | <p>In Progress</p> | <p>Based on the results of outreach throughout the summer and fall, a case study document with the few examples of marine debris reduction policies was created internally by the Alliance for the Great Lakes. Since this case document highlighted approximately only six communities, the potential for new policies focused on single use plastic items (i.e.: bags, straws, etc.) in many communities across the Lakes is present. The Alliance for the Great Lakes is analyzing our Adopt-a-Beach data to highlight communities with strong volunteer presence and ample citizen science litter data to select communities in which these efforts could be supported with a policy advocacy toolkit.</p> | <p>See above action strategy (2.1.1)</p> |
| <p>3. Share the developed summary with policy makers in the Great Lakes region and make recommendations for policy improvements.</p> | <p><u>Coordinator:</u> Clean Water Action Alliance for the Great Lakes, Keep America Beautiful</p> <p><u>Partners:</u> Keep America Beautiful, American Chemistry Council, NERRs</p> | <p>In Progress</p> | <p>Based on the marine debris reduction policy case study document and our Adopt-a-Beach data, a volunteer policy advocacy toolkit is in the early development stages. This toolkit will combine the existing efforts of Adopt-a-Beach volunteers with tools and templates to communicate the data from their cleanups, the science behind marine debris, and the potential policy solutions on the local, county, or state level. This toolkit is still being developed and may include such tools as factsheets, PowerPoint presentations, template legislations, and other resources. This toolkit, along with updates to the Adopt-a-Beach website are set to be implemented in the spring of 2018.</p> | <p>See above action strategy (2.1.1)</p> |

| Objective 2: Share the developed land-based marine debris action plan with the policy and management communities upon its completion. | | | | |
|--|--|-------------|--|---|
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 1. Present the finalized action plan at relevant local, regional, and national conferences and/or meetings. | <p><u>Coordinator:</u> None – captured in annual reporting.</p> <p><u>Partners:</u> Everyone</p> | In Progress | During 2017, the action plan has been presented 6 times to policy and management reps, reaching approximately 263 people. | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Participants in the region will continue to present the plan and report the information during regular updates.</p> <p><u>Challenge:</u> In reporting, contributors often mistake this action for presentation on general marine debris. This is focused only on presenting the action plan to management audiences.</p> <p><u>Potential Solution:</u> Make a clearer distinction between this action and those in Goal 3 in reporting directions.</p> |
| 2. Develop a contact list of policy and management representatives | <p><u>Coordinator:</u> NOAA MDP</p> | 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 | N/A - Complete |

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| for distribution of the final action plan. | <u>Partners:</u> State/Provincial management programs (Coastal Zone, DNRs) EPA, Great Lakes Sea Grant Network, NERRs | | 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, Ohio Coastal Management | In Progress | The fact sheet that was previously created by Ohio Coastal Management and sent to partners for feedback has been forwarded to Sarah Zack at IL-IN Sea Grant, who will now be seeing it through to completion. This project has unexpectedly been delayed due to time constraints but will hopefully be completed by spring 2018. | <u>Estimated completion:</u> 2017 <u>Next Steps:</u> NOAA to connect IL/IN Sea Grant and Ohio Coastal Management. IL/IN Sea Grant interested in leading the work to complete this action. Sea Grant will assess current draft materials or develop new. <u>Challenge:</u> Time commitments have delayed completion of this action. <u>Potential Solution:</u> IL/IN Sea Grant volunteered to lead and has time to complete. |
| 4. Create a general presentation or summary slide on final action plan | <u>Coordinator:</u> Ohio Coastal Management, Great Lakes Sea Grant Network | In Progress | The presentation that was previously created by Ohio Coastal Management and sent to partners for feedback has been forwarded to Sarah Zack at IL-IN Sea Grant, who will now be seeing it through to completion. This project has | <u>Estimated completion:</u> 2017 <u>Next Steps:</u> NOAA to connect IL/IN Sea Grant and Ohio Coastal Management. IL/IN Sea |

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| <p>and share with Great Lakes marine debris community for use in outreach to the policy and management communities.</p> | <p><u>Partners:</u> Michigan Department of Environmental Quality, City of Cleveland Office of Sustainability, Wisconsin Coastal Management, Ohio Coastal Management</p> | | <p>unexpectedly been delayed due to time constraints but will hopefully be completed by spring 2018.</p> | <p>Grant interested in leading the work to complete this action. Sea Grant will assess current draft materials or develop new.</p> <p><u>Challenge:</u> Time commitments have delayed completion of this action.</p> <p><u>Potential Solution:</u> IL/IN Sea Grant volunteered to lead and has time to complete.</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>EPA continues to hold on action 2.2.5, but hopes to gear up some activity with colleagues in EPA's Great Lakes office in 2018 (in addition to research work they already are doing).</p> | <p><u>Estimated completion:</u> 2019?</p> <p><u>Next Steps:</u> Coordinator not in attendance - will get an update</p> <p><u>Challenge:</u> Appears to be dependent on regional EPA office interest and availability.</p> <p><u>Potential Solution:</u> Identify other interested coordinator? Revisit action strategy.</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 | 2017 Progress Description | Mid-Plan Review |
| 1. Engage storm water professionals and the Great Lakes Storm Water Management Institute on land-based marine debris issues in the region. | <u>Coordinator:</u> NERRs | In Progress | LS NERR has recently commented that they simply do not have the capacity to contribute to this plan at this time. Collaborative efforts with LS NERR have therefore been put on hold. OWC NERR has continued to partner with the Erie Conservation District to form the Clean Water Contractor (CWC) Program, which will host its annual expo in February of 2018, which will focus upon post-construction stormwater BMP maintenance. Maintenance for many green infrastructure stormwater control measures involves avoidance of debris in order to maintain successful functioning, so these lessons will be incorporated into the program. | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Old Woman Creek NERR working to incorporate marine debris messages into their "Clean Water Contractor" stormwater management trainings. NEOH Marine Debris Work Group to make connections as well. Plan to reach out to NEOH Stormwater Training Council and expand.</p> <p><u>Challenge:</u> Difficult to communicate to stormwater audiences!</p> <p><u>Potential Solution:</u> Compare other strategies amongst other connections.</p> |

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| | <p><u>Partners:</u> Coastal Zone Management Offices, Clean Water Action, EPA, Great Lakes Sea Grant Network, Erie Soil & Water Conservation District, Cleveland Mayor's Office of Sustainability, Alliance for the Great Lakes, City of Cleveland Water Pollution Control</p> | | | |
| 2. Identify existing storm | <u>Coordinator:</u> NERRs | In Progress | LS NERR staff limitations have put a potentially planned call with NERRS partners to identify | <u>Estimated completion:</u> 2019 |

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| <p>water control practices related to land-based marine debris and identify gaps in programs and/or policy.</p> | <p>Partners: Coastal Zone Management Offices, Clean Water Action, EPA, Great Lakes Sea Grant Network, Erie Soil & Water Conservation District, Cleveland Mayor's Office of Sustainability, Alliance for the Great Lakes, City of Cleveland Water Pollution Control, Keep American Beautiful, American Chemistry Council</p> | | <p>existing marine debris efforts, create a strategy, and allocate assignments to move forward on the progress of this action item on hold. Keep America Beautiful, Alliance for the Great Lakes, and American Chemistry Council agreed to help contribute to this action item via their assessment of practices that is an outcome of action item 2.1.1.</p> | <p>Next Steps: Old Woman Creek NERR will survey other NERRs. Potential for product from 2.1.1</p> <p>Challenge: Staff changes at Lake Superior NERR have caused delays in coordination.</p> <p>Potential Solution: Involve new partners!</p> |
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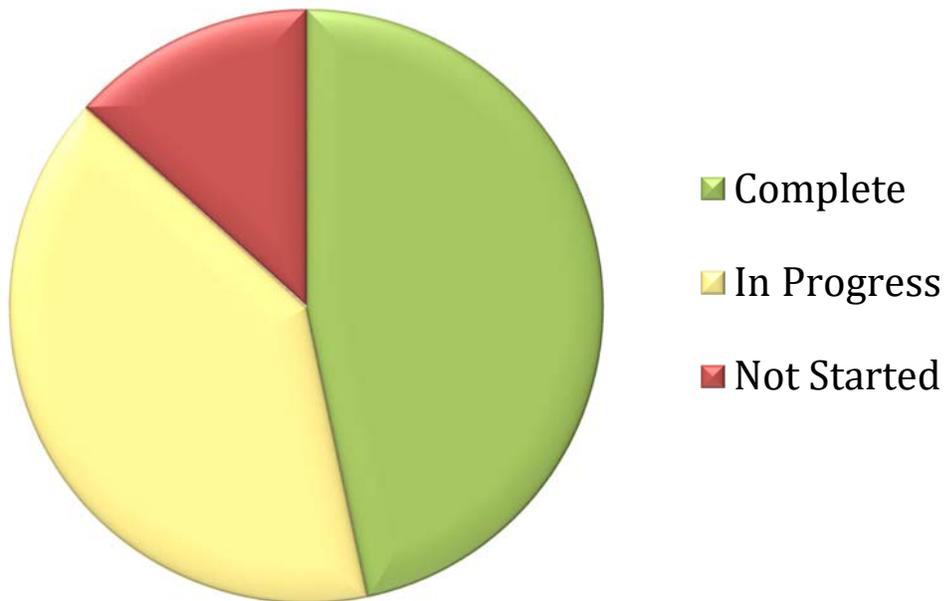
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| <p>3. Implement tools and incentives to leverage action by various groups.</p> | <p><u>Coordinator:</u> NERRs</p> <p><u>Partners:</u> Coastal Zone Management Offices, Clean Water Action, EPA, Great Lakes Sea Grant Network, Erie Soil & Water Conservation District, Cleveland Mayor's Office of Sustainability, Alliance for the Great Lakes, City of Cleveland Water Pollution Control Keep America Beautiful</p> | <p>In Progress</p> | <p>Although this also depends on Keep America Beautiful involvement, locally initiatives have facilitated action groups throughout the northern Ohio area (Sandusky through greater Cleveland area). The NEOH Plastics Reduction working group has been working on campaigns to confront single-use plastic items (straws, plastic bags, filters in cigarette butts). Old Woman Creek NERR has had discussions with an inland-lake organization, "TalkingTrash," regarding the proper disposal and recycling of monofilament fishing line, and the 2017 Recycled Runway event involved multiple action groups' representation to confront the issue of land-based marine debris, which will take place again in April 2018.</p> | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> NERRs will continue to investigate best way to incentivize marine debris actions with stormwater management groups; largely dependent on strategies 2.3.1 and 2.3.2.</p> <p><u>Challenge:</u> Lack of capacity and willingness of audiences</p> <p><u>Potential Solution:</u> Involve new partners!</p> |
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Goal 3: Land-based marine debris is prevented and reduced through an educated and involved community.

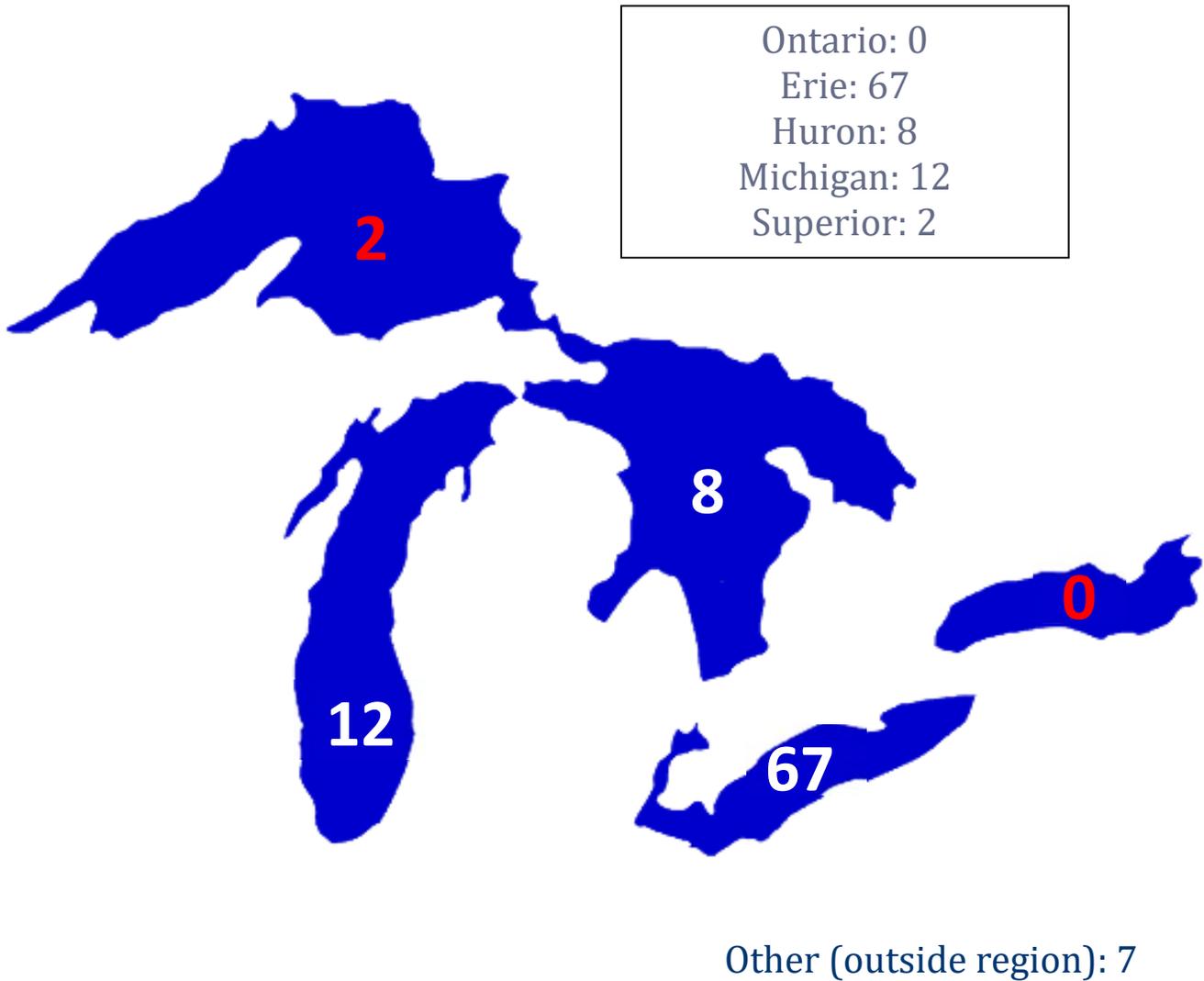
Action Status:

7 Complete
6 In Progress (1 annual complete)
2 Not Started

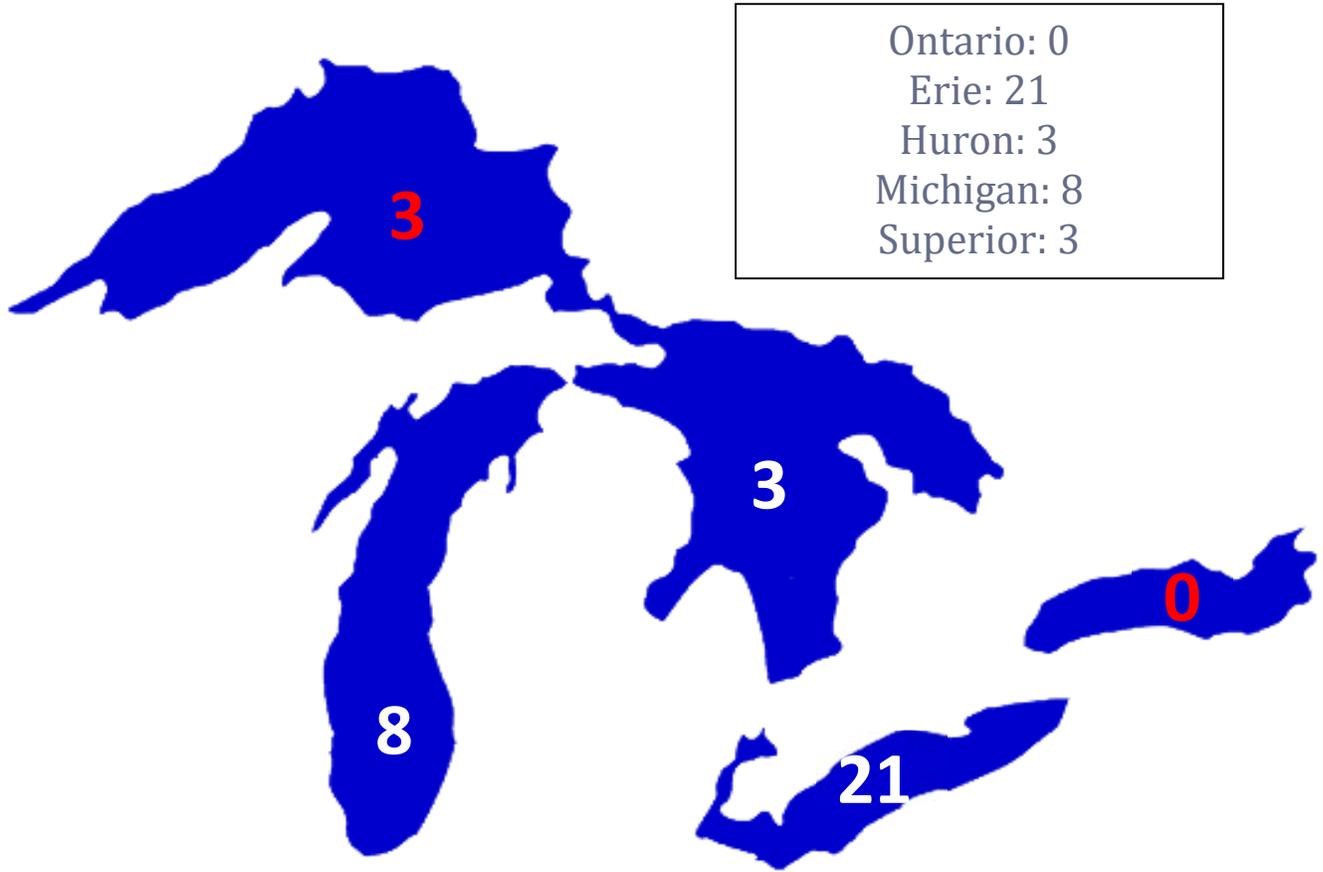
Goal 3 Action Progress



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



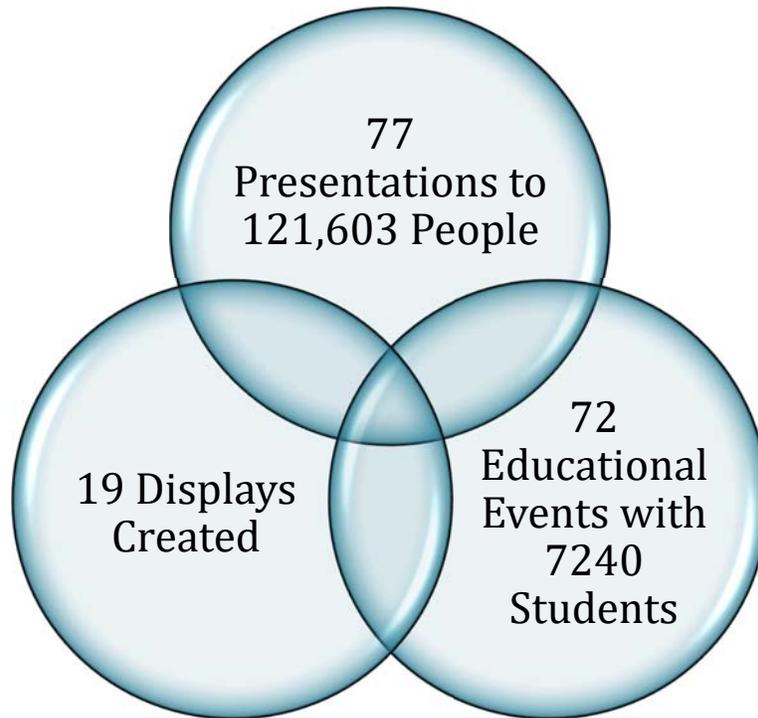
Objective 5: Conduct five formal education activities on land-based marine debris per year, per lake, with targeted audiences.



Ontario: 0
Erie: 21
Huron: 3
Michigan: 8
Superior: 3

Other (outside region): 1

2017 Outreach Highlights



GOAL HIGHLIGHT:

Complete: *Identify and review existing awareness campaigns that could be leveraged (3.2.1).*

Keep America Beautiful and their partners have completed a local pilot campaign in Erie, PA to test the effectiveness of the Hubbub Ballot Bin for reducing cigarette litter. The Erie affiliate placed two bins, one by a library and the second by a park, in their community. Overall results were an 88.5% reduction in cigarette litter over the three months of the pilot (comparing preliminary to final litter scans).

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

Objective 1: *By the beginning of 2016, conduct a needs assessment for future education efforts on land-based marine debris in the Great Lakes.*

| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
|--|--|----------|--|---|
| 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 of 2015, the Alliance interviewed all partners listed (with the exception of those that did not respond to our outreach) in goal 3. 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 has been 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. | N/A - Complete |
| 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, | Complete | To date educational materials have been compiled and reviewed by partners. Initial steps for identifying gaps have been taken. It is challenging, however, to gather partners to analyze materials for gaps. This might be best served by NOAA or an organization that has specific objectives to complete this task in their organizational objectives. | <u>Estimated completion:</u> Now Complete! <u>Next Steps:</u> N/A <u>Challenge:</u> STEM education connections are sparse, but there is recognition for the need for informal curricula as well. Educational standards are always changing. <u>Potential Solution:</u> Include educators in review to get feedback on standards and curricula. |

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| | <p>Inland Seas, Shedd Aquarium</p> | | | |
| <p>3. Create new or adapt existing educational materials to fill gaps identified above.</p> | <p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partners:</u> Great Lakes Sea Grant Network, NOAA MDP, NERRs, WI Coastal Management Program</p> | <p>Not Started</p> | <p>Action needs re-evaluation. See action 3.1.2. Action team has found a lot of ocean-focused materials simply need to be adapted for the GL region, but are finding it challenging in both time and accessibility. It is difficult to adapt curricula that the organizations do not own.</p> | <p><u>Estimated completion:</u> 2018 (Alliance curricula only)</p> <p><u>Next Steps:</u> Alliance for the Great Lakes is working with Shedd Aquarium and educators to adapt their own curricula.</p> <p><u>Challenge:</u> Alliance cannot commit to adapting other curricula that they do not own. Currently not a central location to host Great Lakes marine debris curricula. Research is trying to catch up, not so lid enough to incorporate. Need to get more pics that are Great Lakes focused.</p> <p><u>Potential Solution:</u> Include curricula on new regional collaboration portal, developed materials could be broad enough to encompass all environments (ocean, GL, etc.), encourage groups who own curricula to make it GL specific themselves.</p> |

| Objective 2: By the end of 2016, launch at least one awareness campaign for Great Lakes communities regarding land-based marine debris. | | | | |
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| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 1. Identify and review existing awareness campaigns that could be leveraged. | <p><u>Coordinator:</u> Keep America Beautiful</p> <p><u>Partner:</u> Alliance for the Great Lakes, Inland Seas, Hubbub (UK-based litter prevention organization)</p> | Complete | <p>Keep America Beautiful has completed a local pilot in Erie, PA to test the effectiveness of the Hubbub Ballot Bin for reducing cigarette litter. The Erie affiliate placed two bins (one by a library and the second by a park) in their community. Overall results were an 88.5% reduction in cigarette litter over the months of the pilot (comparing preliminary to final litter scans).</p> | <p><u>Estimated completion:</u> 2017</p> <p><u>Next Steps:</u> Alliance is installing cigarette butt ballot bins this Spring. It will be a 3-month pilot campaign. Lessons-learned will be shared with partners.</p> <p><u>Challenge:</u> Currently, interest is focused only on cigarette butt campaigns.</p> <p><u>Potential Solution:</u> American Chemistry Council has examples of other awareness campaigns that they will share.</p> |
| 2. Engage a marketing expert to assist in the development of a campaign. | <p><u>Coordinators:</u> City of Cleveland</p> | In Progress | <p>A local marketing firm, thunder::tech, has contracted with the City of Cleveland to develop a marketing campaign for plastic grocery bags and disposable water bottles. Several options were presented and Don't Break the Lake was</p> | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> Behavior change research conducted by Ohio Sea Grant will be presented to</p> |

| | <p><u>Partners:</u> Alliance for the Great Lakes, American Chemistry Council, Great Lakes Sea Grant Network, Keep America Beautiful, Hi-Cone, Inland Seas</p> | | <p>chosen as the campaign message. Several promotional materials have been created (see website: dontbreakthelake.org). Over the next few months, additional materials will be produced for the campaign.</p> | <p>Thunder::Tech. Thunder::Tech will present campaign ideas to project team.</p> <p><u>Challenge:</u> Contracting bureaucracy caused delays</p> <p><u>Potential Solution:</u> Extension for project/award.</p> |
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| <p>Objective 3: By 2019, develop a social marketing plan, including 10 communication products to address land-based marine debris in the Great Lakes.</p> | | | | |
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| <p>1. Identify and review effectiveness and impact of existing social marketing programs on littering behavior.</p> | <p><u>Coordinators:</u> Keep America Beautiful & Alliance for the Great Lakes <u>Partners:</u> Great Lakes Sea Grant Network, Clean Water Action, NERRs</p> | <p>Complete</p> | <p>May 2016¹ info: 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.</p> | <p><u>Estimated completion:</u> Now Complete!</p> <p><u>Next Steps:</u> KAB will share the info to the group via PowerPoint. Lesson-learned: no one situation/campaign is sufficient to solve the problem.</p> |

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| <p>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.</p> | <p><u>Coordinator:</u> City of Cleveland, Alliance for the Great Lakes</p> | <p>Complete</p> | <p>The City of Cleveland has contracted with a local marketing firm, thunder::tech, to develop a social marketing campaign for three plastic marine debris items. Thunder::tech has subcontracted with Ohio Sea Grant (OSG) to conduct research into the barriers to desired behaviors for these three items. OSG conducted an online survey that was distributed via multiple channels. 982 respondents finished the survey and resided in the five county region of concern. Of those respondents, only two were smokers. A focus group was convened to discuss disposal methods of plastic cigar tips. OSG presented the results of their research to thunder::tech in March 2017 (attached). In general, respondents forget their reusable bags and bottles. The barriers to the proper disposal of cigar tips are both material and social.</p> <p>The results have been shared with the local marketing firm for development of the campaign.</p> | <p>See information in 3.2.2. Both actions are related to a grant received by the City of Cleveland.</p> |
| <p>Objective 4: Conduct five informal education activities on land-based marine debris per year, per lake, to the general public.</p> | | | | |
| <p>Action Strategies</p> | <p>Coordinating & Partner Organizations</p> | <p>Status</p> | <p>2017 Progress Description</p> | <p>Mid-Plan Review</p> |

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| <p>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> | <p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partner:</u> Old Woman Creek NERR</p> | <p>Complete</p> | <p>The Alliance launched a new pilot initiative in Chicago called "My Beach Your Beach" through which multiple social and cleanup activities were hosted at Oak Street Beach throughout the summer. These events included placing small flags on the beach during beach cleanups as items were removed from the beach; a voting box in which individuals could vote with cigarette butts; and various cleanup events. Over the next several months, we will be assessing the impacts of this work. In addition, the Alliance is working with the state of Michigan on a Clean Beaches Initiative where we are bringing together agencies at the state level to share information on marine debris in Michigan coastal areas and looking for opportunities to collaborate to reduce debris.</p> | <p><u>Estimated completion:</u> Now Complete!</p> <p><u>Next Steps:</u> N/A</p> <p><u>Challenges:</u> Lots of coordination was required</p> |
| <p>2. Organize an annual Boat Float in Lake Erie.</p> | <p><u>Coordinator:</u> City of Cleveland Office of Sustainability</p> <p><u>Partners:</u> Cleveland Metroparks, Cleveland Museum of Natural History, Alliance for the Great Lakes, Drink</p> | <p>In Progress; 2014, 2015, 2016, 2017 complete</p> | <p>The 9th Annual Great Lake Erie Boat Float was held on September 9, 2017 at Edgewater Park Beach. Four boats entered the contest this year. Photos from the Boat Float may be found at: http://www.ldempsey.com/679761/lake-erie-boat-float-2017/.</p> <p>Plans are now underway for the 10th Annual Boat Float.</p> | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> City of Cleveland will reach out to Medina High School for lessons-learned in their large-scale event.</p> <p><u>Challenge:</u> Weather, low participation last year</p> <p><u>Potential Solution:</u> Encourage teachers to get classes to participate, recruit additional sponsors, hold event in concurrence with other large events, get lessons-learned from other successful floats.</p> |

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| | Local Drink Tap and RES Polyflow | | | |
| 3. Stop in and present to coastal communities during research cruises Outreach to general public, including presentations to coastal communities during field research expeditions. | <p><u>Coordinator:</u> None – captured in annual reporting.</p> <p><u>Partners:</u> All researchers</p> | In Progress | 77 tabling events, presentations, and interviews were conducted during the 2017 reporting period reaching 121,603 people. | Action strategy was reworded to capture general outreach/presentations to general public. |
| 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. | <p><u>Coordinator:</u> None – captured in annual reporting.</p> <p><u>Partners:</u> Everyone</p> | In Progress | During this reporting period, approximately 62,188 people saw displays at nineteen locations. There is one additional display in the planning stages. | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Continue to record developed displays.</p> <p><u>Challenge:</u> Need to define "display."</p> <p><u>Potential Solution:</u> Clarify definition in reporting instructions.</p> |
| 5. Encourage large-scale public events (i.e. conferences, etc.) to be "zero-waste" or "reduced-waste." | <p><u>Coordinators:</u> Keep America Beautiful & City of Cleveland Office of Sustainability</p> | In Progress | The ZeroWasteNEO Working Group hosted a Zero or Reduced Waste Event Planning Workshop on August 15th. In addition, the Coordinator participated and/or coordinated several zero or reduced waste events from April to September 2017. These events include: EarthFest, PorchFest, ciCLEvia in four City of | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> City of Cleveland will share updated reduced-waste planning guide.</p> <p><u>Challenge:</u> Composting is not</p> |

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| <p><u>Partners:</u> SC2019 ZeroWasteNE O Working Group, Graduates of the Cuyahoga County Solid Waste District's Master Recyclers class</p> | | <p>Cleveland neighborhoods, the Sustainable Cleveland Summit and the Citywide Potluck.</p> | <p>always an option; finding enough volunteers to help at events.</p> <p><u>Potential Solution:</u> Label as "reduced-waste" instead of "zero-waste" when composting isn't available.</p> |
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Objective 5: Conduct five formal education activities on land-based marine debris per year, per lake, to targeted audiences.

| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
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| <p>1. Host a regional webinar on land-based marine debris for education/outreach professionals.</p> | <p><u>Coordinators:</u> NOAA MDP & Alliance for the Great Lakes</p> <p><u>Partners:</u> Great Lakes Sea Grant Network</p> | <p>Not Started</p> | <p>An in-person session on Plastics in Coastal Areas engaged 47 participants at the National Marine Educators Association Conference in June 2017. Sea Grant's presentation included an overview of the microplastic issue along with examples of how Great Lakes Sea Grant programs were sharing information and engaging stakeholders, educators, students and the public through stewardship focusing on ways to bring about behavior change.</p> <p>Additionally, a session on Emerging Contaminants, including microplastics, was held at the June 2017 Great Lakes Sea Grant Network Meeting in Cleveland. This update and training for our Sea Grant colleagues was stipulated in a National Sea Grant funded training held at GLERL in April of 2016. 47 people attended this session including Jonathan Pennock, Sea Grant Director.</p> | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> NOAA & Alliance will engage Sea Grant educators and other partners for connections to education networks.</p> <p><u>Challenge:</u> Time commitments</p> |

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| | | | A webinar will be investigated in the Spring of 2018. | |
| 2. Host a teacher workshop or class on land-based marine debris. | <u>Coordinators:</u> Great Lakes Sea Grant Network, NOAA MDP | Complete /Additional Workshops In progress | <p>2015: 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 the experience of manta net trawls and sample analysis with Dr. Rios Mendoza, as well as 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>2016: On October 1, 2016, training was provided for ten NY and PA teachers that included marine debris and micro plastics as one of three focus topics. Science-based information was shared,</p> | N/A - Complete |

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| | <p><u>Partner:</u> Alliance for the Great Lakes, Old Woman Creek NERR, Regional Science Consortium at the Tom Ridge Environmental Center</p> | | <p>and teachers were/are being encouraged to engage their students and school communities in this issue by developing and implementing service-learning projects. Support is being provided for field trips that inform these projects and supplies to develop and share an outreach component.</p> <p>During 2016 NMEA conference, Terri Hallesy from IISG participated in the Florida Microplastic Awareness Project workshop at SGEN meeting. Hallesy also co-presented Stop Drugging Our Ecosystems! session at NMEA, along with NYSG educator, Helen Domske.</p> <p>On August 3rd, 2016 Helen Domske hosted a teacher training on microplastics. Sixteen teachers attended. Those teachers reach approximately 1900 students.</p> <p>In addition, seven teachers participated in marine debris training over the summer as part of Water and Wildlife Training for Educators, a week-long course offered at OSU's Stone Lab in Lake Erie's Western Basin.</p> <p>2017: The Regional Science Consortium at the Tom Ridge Environmental Center hosted a program from South Africa, called Eco Girls, which focuses on providing job skills in the sciences that offer young women alternatives that improve their standard of living. They stayed in the US for a week. PA Sea Grant staff provided an overview of the marine debris/microplastics issue in our area and a discussion ensued over the overabundance of</p> | |
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| | | <p>plastic trash in their area and the dearth of resources for proper disposal or recycling. Eco Girls is sending ten teachers to Erie in 2018 for training. PASG will be a participant in that event.</p> <p>11 teachers from 8 school district in PA and NY learned about impacts of microplastics on water quality, performed a clean-up as part of the training, performed a microplastic sampling of beach sand and agreed to engage their students in the International Coastal Clean-up during the fall 2017.</p> <p>Through the Center for Great Lakes Literacy, Hallesy conducted two workshops--July 20, Place-based workshop at Purdue Calumet serving 42 teachers, and on August 7, Empower Students as Environmental Stewards workshop at Brookfield Zoo for 14 educators. The workshop provided educators with experience and understanding using the Great Lakes Literacy Principles to engage students in caring for their local waterways. Through direct experience with relevant education resources, these educators are now better equipped to explain how students can play an active role in helping to address critical environmental issues such as AIS and marine debris and foster a greater awareness of aquatic science.</p> | |
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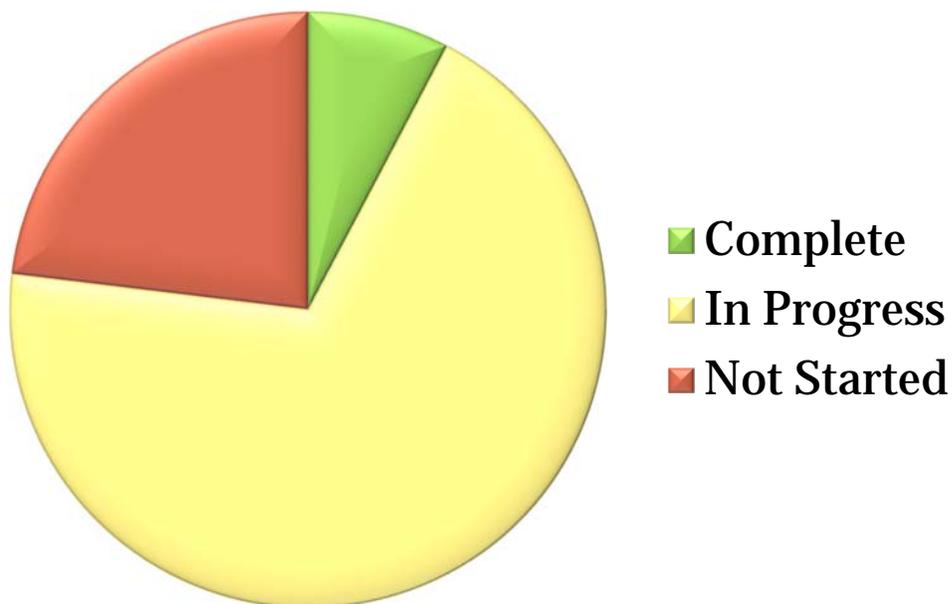
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| <p>3. Conduct land-based marine debris educational activities with students of all ages in the Great Lakes.</p> | <p><u>Coordinator:</u> None – captured in annual reporting.</p> <p><u>Partners:</u> Everyone</p> | <p>In Progress</p> | <p>7240 students of various ages were reached through 72 education events.</p> | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Participants in the region will continue to conduct educational activities and report the information during regular updates.</p> |
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Goal 4: The impacts of land-based marine debris are reduced through removal and tracking efforts.

Action Status:

1 Complete
9 In Progress
3 Not Started

Goal 4 Action Progress



GOAL HIGHLIGHT:

In-Progress: *Develop or adapt best management practices (BMPs) to target specific environments or debris types (4.2.2).*

Ohio Sea Grant is working with the Toledo Tennis Club and Mentor Heisley Racquet Club to obtain and distribute personal monofilament fishing line recycling containers to anglers. Partners have received 400 bins from the Toledo Tennis Club through Partners for Clean

Streams, and an additional three bins from Heisley Racquet Club. Ohio Sea Grant is in the process seeking funding for workshops to make larger monofilament bins, and to purchase the other items needed to complete the personal monofilament bins. Additionally, there has been great success having students or children write letters to the angler who will receive the personal monofilament bins, thanking them for removing their waste from the environment protecting the animals, humans, and the environment. Also many youth volunteers from the Cleveland Metroparks have helped to construct the personal monofilament bins and in the process have learned more about marine debris while receiving volunteer hours for school. There is also planned activities to work with senior citizen groups in Lake County, Ohio to help put together the personal monofilament containers.

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 | 2017 Progress Description | Mid-Plan Review |
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| 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> | Complete | Great Canadian Shoreline Cleanup has a similar system for tracking volunteer cleanups through an online database tool. The GCSC is now also encouraging year-round cleanups in addition to the traditional ICC event. They use the same data collection card as the Alliance and the other groups in the Great Lakes doing the ICC event. | N/A - Complete |
| 2. Identify centralized location that will direct people to sources of volunteer coastal cleanup data. coordinate and host volunteer coastal cleanup data. | <p><u>Coordinator:</u> Alliance for the Great Lakes</p> | In Progress | This is likely something the Great Lakes Collaborative Portal can accomplish, once more partner uploads are complete. | <p><u>Estimated completion:</u> 2017</p> <p><u>Next Steps:</u> Ensure cleanup opportunities link is included in collaboration portal.</p> <p><u>Challenge:</u> Numerous organizations currently host data differently, with different branding necessary. Data is complex with multiple geographic levels (local, state, region, etc.)</p> |

| | | | | <u>Potential Solution:</u> Cleanup links will be made available in the collaboration portal, which will help point people to sources of data instead of hosting the data directly. |
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| Objective 2: <i>By 2019, develop and publish recommendations for best practices for removing land-based marine debris.</i> | | | | |
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 1. Investigate existing removal methods for land-based marine debris and analyze for similarities as well | <u>Coordinator:</u> NERRs <u>Partner:</u> Great Lakes Sea Grant Network | In Progress | OWC NERR has begun to construct, paint, and disseminate monofilament fishing line recycling receptacles along Ohio's Lake Erie coast at prominent fishing piers, marinas, beaches & parks. Workshops to construct | <u>Estimated completion:</u> 2019 <u>Next Steps:</u> Coordinators will continue to investigate local and national removal strategies. |

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| <p>as benefits and challenges.</p> | | | <p>and paint receptacles in the spring are in the planning stages.</p> <p>OWC NERR has also installed one cigarette butt recycling receptacle at their visitor's center and plans to install another at their beach/boat house, as well as construct a mobile receptacle for off-site trainings.</p> <p>The OWC NERR CTP Coordinator plans to present all action items for which the NERRS is coordinator and survey other coastal entities' stormwater control measures/policies and methods of removal regarding land-based marine debris.</p> <p>OWC and LS NERRs have also discussed the potential for surveying other NERRs outside of the Great Lakes to gain insight on different marine debris removal tactics (e.g. removal of derelict crab pots, disposal/recycling of monofilament fishing line). OWC NERR still plans to disseminate a survey to the other NERRS despite LS NERR's excuse from the plan.</p> <p>The Great Lakes Sea Grant Network has agreed to help contribute to this action item since they have begun/will begin to pursue similar objectives (action item 4.3.2).</p> | <p><u>Challenge:</u> Staff turnover at Lake Superior NERR, causing minor delays.</p> <p><u>Potential Solution:</u> Old Woman Creek NERR will reach out to other NERRs and local affiliates to gather info.</p> |
| <p>2. Develop or adapt best management practices (BMPs) to target specific</p> | <p><u>Coordinator:</u> Great Lakes Sea Grant Network</p> | <p>In Progress</p> | <p>Ohio Sea Grant is working with Toledo Tennis Club and Mentor Heisley Racquet Club to obtain and distribute monofilament recycling containers to anglers. Ohio Sea</p> | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Ohio Sea Grant is working to write a grant this year</p> |

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| <p>environments or debris types.</p> | | | <p>Grant received 400 bins from the Toledo Tennis Club through Partners for Clean Streams and three bins from Heisley Racquet Club. Ohio Sea Grant is in the process of writing a grant to get funding to host workshops to make larger monofilament bins and to purchase the other items needed to complete the personal monofilament bins. We have seen great success having students or children write letters to the angler who will receive the personal monofilament bins thanking them for removing their waste from the environment protecting the animals, humans, and the environment. Also many youth volunteers from the Cleveland Metroparks have helped to construct the personal monofilament bins and in the process have learned more about marine debris while receiving volunteer hours for school. We will also work with senior citizen groups in Lake County to help put together the personal monofilament containers.</p> | <p>for monofilament recycling bins. Sea Grant will also connect with the Alliance for the Great Lakes and other organizations to include BMPs from existing "how-to" guides.</p> <p><u>Challenge:</u> Sea Grant is in need of a staff member to take the lead on this action item. It is also currently focused only on monofilament.</p> <p><u>Potential Solution:</u> Encourage other Sea Grant reps and other cleanup organizations to participate to broaden scope (beyond monofilament). Alliance has BMPs in their "how-to" cleanup guides.</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</p> | <p>In Progress</p> | <p>Ohio Sea Grant is continuing outreach and education efforts to work with high school and middle school students through programs with the Cleveland Metroparks, Perry Middle School, and Stow-Munroe High School. Students will fill out Alliance for the</p> | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> Coordinators will encourage other Sea Grant reps to participate in this action.</p> |

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| | <u>Partner:</u> WI Coastal Management Program | | Great Lakes debris data collection cards and learn about the effects of marine debris and actions they can take in their everyday life to lessen the impact. At outreach events, Ohio Sea Grant and the Ohio Clean Marinas/Clean Boater Programs educate stakeholders on marine debris based on the recommendations from the Land-Based Marine Debris Action Plan and through sharing of current research to create an informed public. | <p><u>Challenge:</u> Sea Grant is need of a staff member to take the lead on this action item, or identify others willing to help due to staff time.</p> <p><u>Potential Solution:</u> Discuss with other Sea Grant reps at Great Lakes Network meeting. Ask for student assistance, either through an intern or research assistant.</p> |
| 4. Share BMP recommendations with stakeholders. | <u>Coordinator:</u> Great Lakes Sea Grant Network | In Progress | Ohio Sea Grant is continuing outreach and education efforts to work with high school and middle school students through programs with the Cleveland Metroparks, Perry Middle School, and Stow-Munroe High School. Students will fill out Alliance for the Great Lakes debris data collection cards and learn about the effects of marine debris and actions they can take in their everyday life to lessen the impact. At outreach events, Ohio Sea Grant and the Ohio Clean Marinas/Clean Boater Programs educate stakeholders on marine debris based on the recommendations from the Land-Based Marine Debris Action Plan and through sharing of current research to create an informed public. | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> Coordinators will encourage other Sea Grant reps to participate in this action.</p> <p><u>Challenge:</u> Sea Grant is need of a staff member to take the lead on this action item, or identify others willing to help due to staff time.</p> <p><u>Potential Solution:</u> Discuss with other Sea Grant reps at Great Lakes Network meeting. Ask for student assistance, either through an intern or research assistant.</p> |
| 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 | 2017 Progress Description | Mid-Plan Review |

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| <p>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.</p> | <p><u>Coordinator:</u> Alliance for the Great Lakes</p> <p><u>Partner:</u> Ocean Conservancy, University of Michigan, Loyola University</p> | <p>In Progress</p> | <p>The Alliance has shared our Adopt-a-Beach data with multiple researcher partners across the basin. In January of 2017, Adopt-a-Beach data was featured in an article in "Science of the Total Environment" Vol. 577, entitled "Citizen science datasets reveal drivers of spatial and temporal variation for anthropogenic litter on Great Lakes beaches". Dr. Timothy Hoellein from Loyola University was the lead author on the paper with several Alliance staff members.</p> <p>Additionally, the Alliance has shared Adopt-a-Beach data with other partners working on analysis, such as the Shedd Aquarium.</p> | <p><u>Estimated completion:</u> 2018</p> <p><u>Next Steps:</u> Some research publications are in process. Alliance will check on the status.</p> |
| <p>2. Partner with industry, manufacturers, and packaging companies to create targeted participate in and support removal efforts.</p> | <p><u>Coordinators:</u> Hi-Cone & Illinois Tool Works</p> <p><u>Partner:</u> Shedd Aquarium</p> | <p>In Progress</p> | <p>No Report for 2017. Needs new coordinator No progress in 2017.</p> | <p><u>Estimated completion:</u> ?</p> <p><u>Next Steps:</u> Recruit a replacement coordinator. Reassess action strategy.</p> <p><u>Challenge:</u> Current coordinator has expressed time commitment concerns and is interested in finding another action coordinator.</p> <p><u>Potential Solution:</u> Advertise for new coordinator</p> |
| <p>Objective 4: Create a natural disaster preparedness plan (by state or lake) for land-based marine debris within five years.</p> | | | | |
| <p>Action Strategies</p> | <p>Coordinating & Partner Organizations</p> | <p>Status</p> | <p>2017 Progress Description</p> | <p>Mid-Plan Review</p> |

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| <p>1. Review lessons-learned from Hurricane Sandy response.</p> | <p><u>Coordinator:</u> NOAA MDP</p> <p><u>Partners:</u> Alliance for the Great Lakes, Ohio Department of Natural Resources/Ohio Emergency Management Association, Environment Canada</p> | <p>Not Started</p> | <p>Work on this action will begin in April 2018, following the completion of the 6th International Marine Debris Conference. We are looking into the possibility of an intern or fellow completing this goal 4 task.</p> | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Coordinator will review Sea Grant preparedness document developed for marinas in the region.</p> <p><u>Challenge:</u> Time commitments and level of effort.</p> <p><u>Potential Solution:</u> Look into the possibility of acquiring a coastal management fellow or intern to complete task. Existing guides may be adaptable instead of developing new preparedness plans.</p> |
| <p>2. Review preparedness plans from other regions and industry partners.</p> | <p><u>Coordinator:</u> NOAA MDP</p> <p><u>Partner:</u> Environment Canada</p> | <p>Not Started</p> | <p>Work on this action will begin in April 2018, following the completion of the 6th International Marine Debris Conference. We are looking into the possibility of an intern or fellow completing this goal 4 task.</p> | <p><u>Estimated completion:</u> 2019</p> <p><u>Next Steps:</u> Coordinator will review Sea Grant preparedness document developed for marinas in the region.</p> <p><u>Challenge:</u> Time commitments and level of effort.</p> <p><u>Potential Solution:</u> Look into the possibility of acquiring a coastal management fellow or intern to complete task. Existing guides may be adaptable instead of developing new preparedness plans.</p> |

| 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 April 2018, following the completion of the 6th International Marine Debris Conference. We are looking into the possibility of an intern or fellow completing this goal 4 task. | <u>Estimated completion:</u> 2019 <u>Next Steps:</u> Coordinator will review Sea Grant preparedness document developed for marinas in the region. <u>Challenge:</u> Time commitments and level of effort. <u>Potential Solution:</u> Look into the possibility of acquiring a coastal management fellow or intern to complete task. Existing guides may be adaptable instead of developing new preparedness plans. |
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| Objective 5: By 2019, remove 200 tons of land-based marine debris from Great Lakes environments. | | | | |
| Action Strategies | Coordinating & Partner Organizations | Status | 2017 Progress Description | Mid-Plan Review |
| 1. Understand the current baseline of land-based marine debris removed by volunteers in the region. Report on these values. | <u>Coordinator:</u> Alliance for the Great Lakes <u>Partner:</u> Ocean Conservancy | In Progress | 2016 data has yet to be reported. | <u>Estimated completion:</u> 2019 <u>Next Steps:</u> Alliance will continue to report on the amount of debris removed by volunteers each year. |
| 2. Identify funding opportunities and potential land-based marine debris removal projects throughout the region. | <u>Coordinator:</u> None – captured in annual reporting. <u>Partners:</u> Everyone | In Progress | Funding opportunities are now available on the portal: https://greatlakes-mdc.diver.orr.noaa.gov/funding-opportunities | <u>Estimated completion:</u> 2019 <u>Next Steps:</u> Participants in the region will continue to report any funding opportunities during regular updates. These will be highlighted on the collaboration portal. |



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