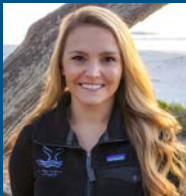


# Marine Debris Toolkit for Educators

*Incorporating citizen science and community action into an educational setting*



**Alyssa Nally**

Program Coordinator | Ocean Guardian School Program  
NOAA's Office of National Marine Sanctuaries  
[alyssa.nally@noaa.gov](mailto:alyssa.nally@noaa.gov)



**Sherry Lippiatt, PhD**

California Regional Coordinator  
NOAA Marine Debris Program / IMSSG  
[sherry.lippiatt@noaa.gov](mailto:sherry.lippiatt@noaa.gov)

# Marine Debris Toolkit *for educators*

- Collaboration between
  - NOAA's Office of National Marine Sanctuaries
  - NOAA's Marine Debris Program
- Kit to aid in students' marine debris monitoring efforts
  - Coastal communities
  - Inland communities

<https://marinedebris.noaa.gov/curricula/marine-debris-monitoring-toolkit-educators>

NOAA Marine Debris Program  
NOAA Office of National Marine Sanctuaries

## Marine Debris Toolkit *for educators*





# Marine Debris is a Global Environmental Issue

Trash can be found in all areas of the ocean, including...

**Open Ocean**



**Deep Sea**



**Remote Islands**



**Coastal Areas**





# Why should students monitor?

Photo: NOAA Marine Debris Program



Photo: NOAA Marine Debris Program



- Increase student interest in environmental issues
- Establish a sense of responsibility within your community
- Educate students about how **every individual** can become part of the solution
- Incorporate citizen science into lesson plans focused on marine debris
- Tangible opportunity to engage in real science
- To make a difference for the future of our watersheds and ocean

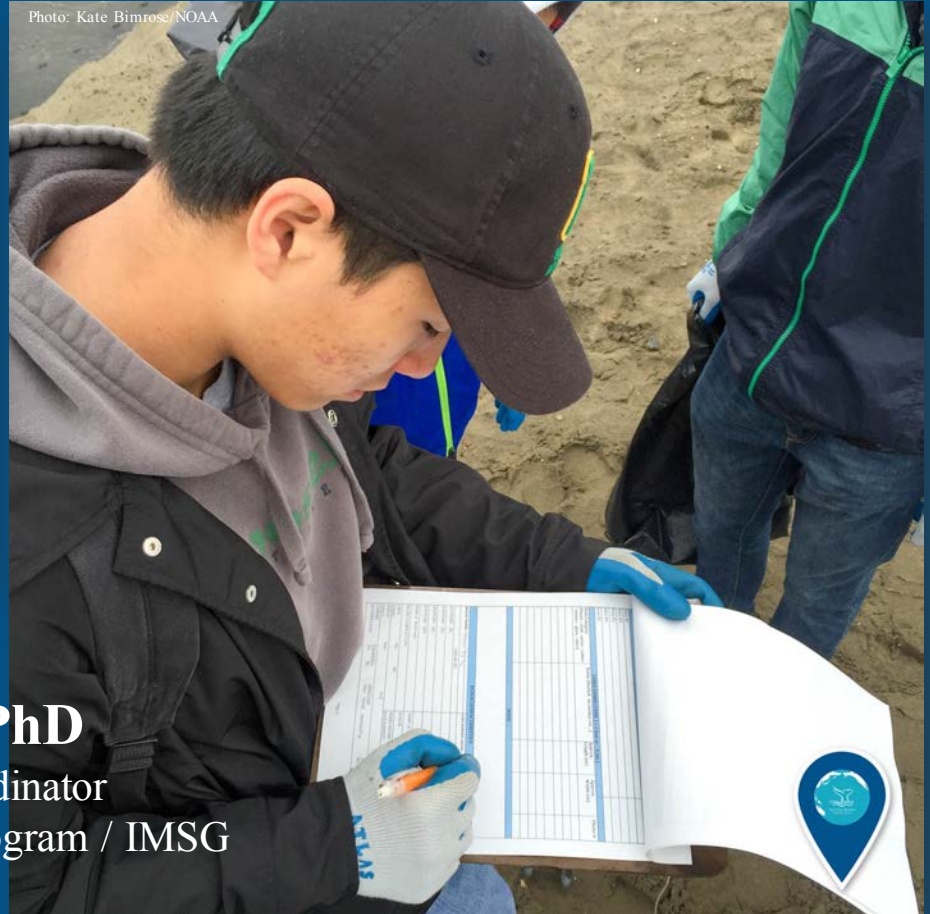


# NOAA's Marine Debris Program Marine Debris Monitoring & Assessment Project (MDMAP)

Photo: Karlyn Langjahr/NOAA



Photo: Kate Bimrose/NOAA



**Sherry Lippiatt, PhD**  
California Regional Coordinator  
NOAA Marine Debris Program / IMSG



# NOAA Marine Debris Monitoring and Assessment Project (MDMAP)

Sherry Lippiatt, PhD  
California Regional Coordinator  
NOAA Marine Debris Program  
I.M. Systems Group

Photo: NOAA







# NOAA Marine Debris Program

Established in **2006** by U.S. Congress as the federal lead for marine debris

**Mission:** to investigate and prevent the adverse impacts of marine debris



# Program Pillars

- Prevention
- Removal
- Research
- Emergency Response
- Regional Coordination



Photo: NOAA





# Marine Debris Monitoring

- Guide prevention
- Evidence to support new policies
- Evaluate effectiveness of existing policy
- Quantify impacts
- Management decisions
- Community & stakeholder engagement
- Behavior change



Photo: NOAA





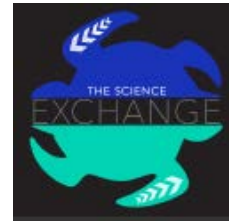
A person wearing a blue jacket, a tan cap, and white gloves is kneeling on a sandy beach. They are holding a clipboard with a form titled 'NOAA Marine Debris Monitoring and Assessment Project (MDMAP) 2012'. The form has sections for 'PLASTIC', 'METAL', and 'GLASS'. The person is looking down at the clipboard. In the foreground, there is a red plastic cap and a yellow marker on the sand.

## Marine Debris Monitoring and Assessment Project (MDMAP)

- National program to support research and science-based policies
- Provide tools to partners
- Spatial and temporal changes in debris loads by material type
- Raise awareness
- **Guide prevention**



# MDMAP Partners



## Methodology

- Shoreline sites are partner-selected
- 100 m parallel to water
- All items > 2.5 cm
- Monthly surveys
- Data entry to online database



Photo: NOAA

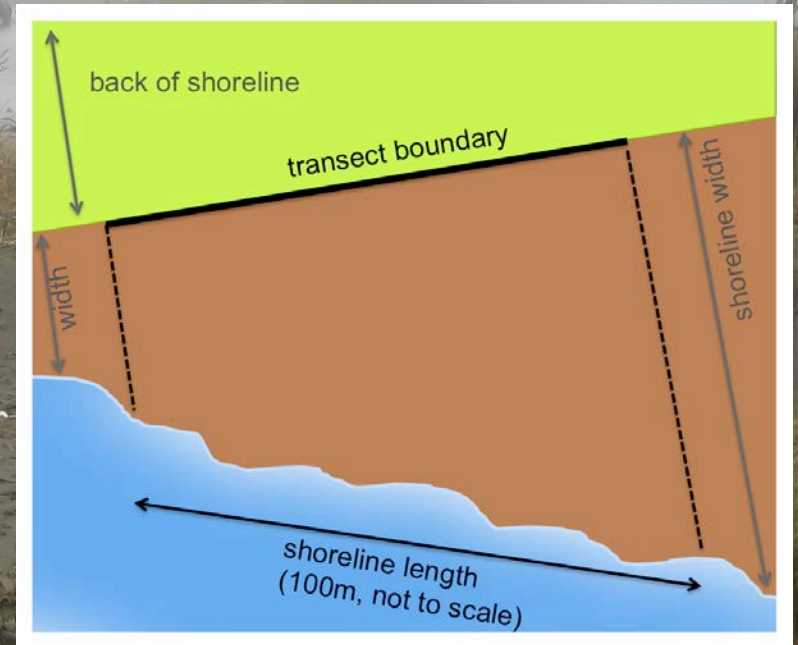
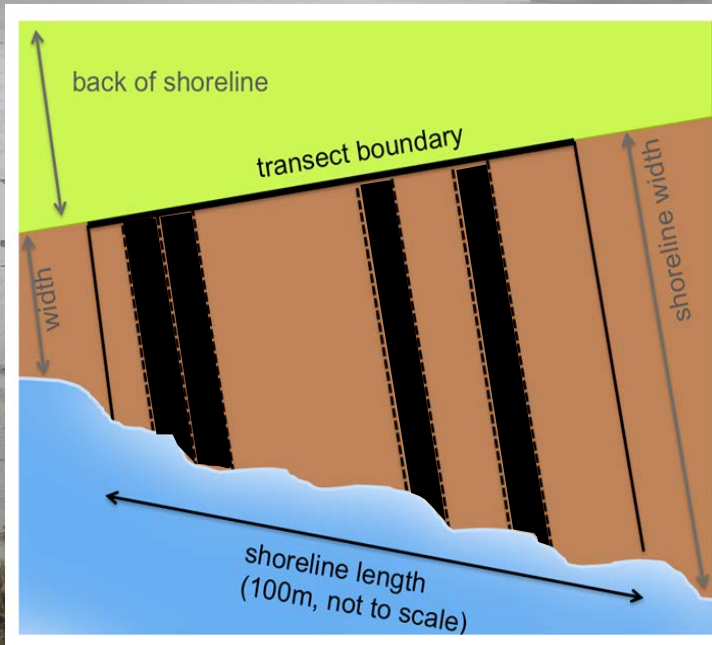




# Methodology

Standing Stock  
(no debris removal)

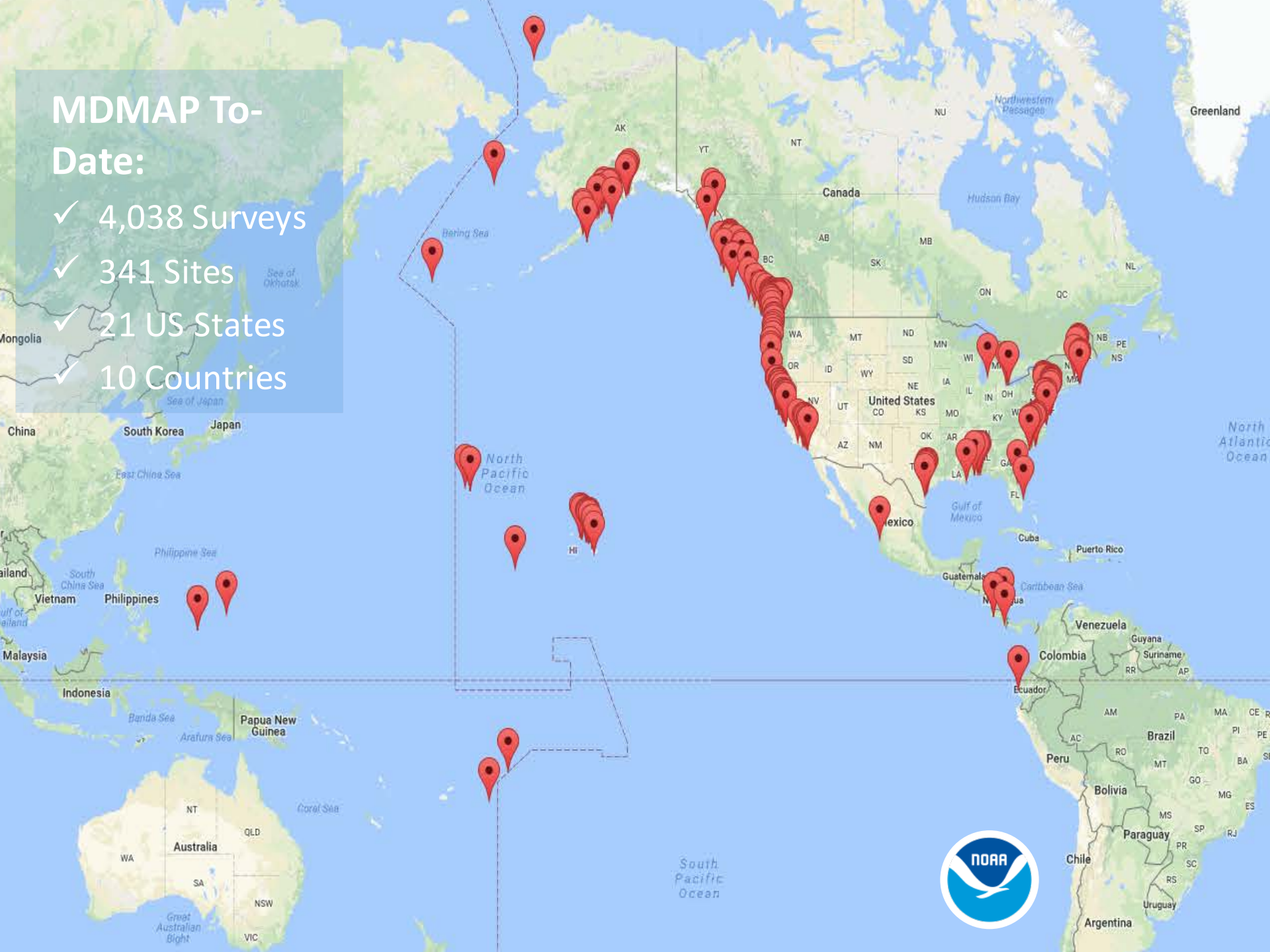
Accumulation  
(beach cleanup)





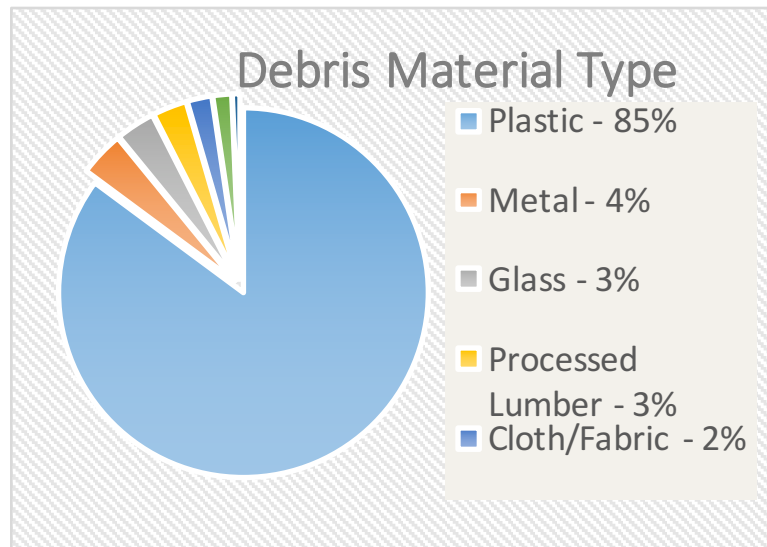
# MDMAP To-Date:

- ✓ 4,038 Surveys
- ✓ 341 Sites
- ✓ 21 US States
- ✓ 10 Countries





# Results – Debris Types

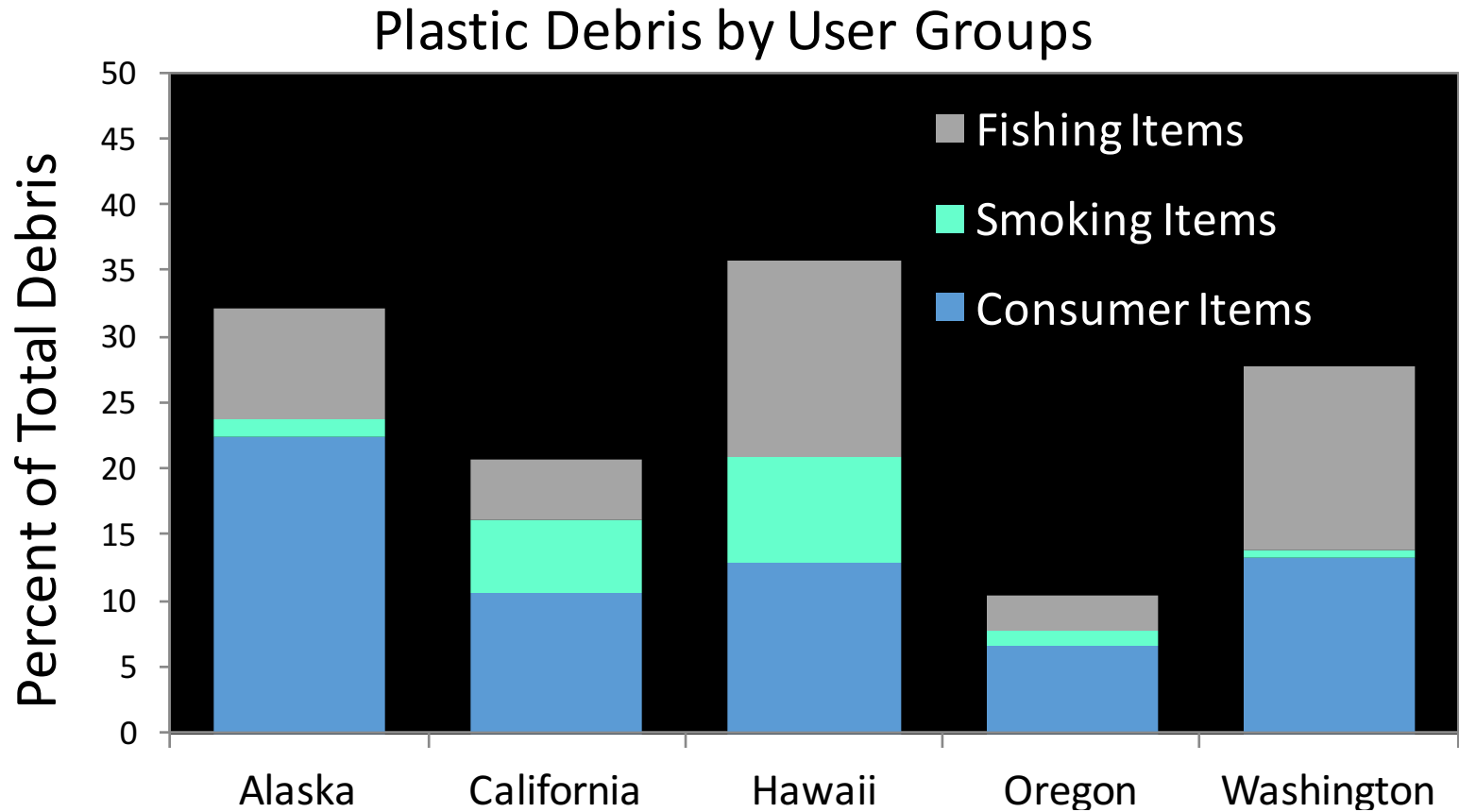


ITEM	COUNT
Hard Plastic Fragments	160957
Foamed Plastic Fragments	64375
Plastic Rope/Net	45903
Plastic Bottle/Container Caps	33333
Filmed Plastic Fragments	27241
Plastic Other	22706
Plastic Beverage Bottles	17929
Cigarettes	16801
Glass Fragments	15413
Plastic Food Wrappers	15118

524,556 total items



# Results – Debris Types



\* Does not include cigarette butts < 2.5 cm



# Results – Trends



Contents lists available at [ScienceDirect](#)

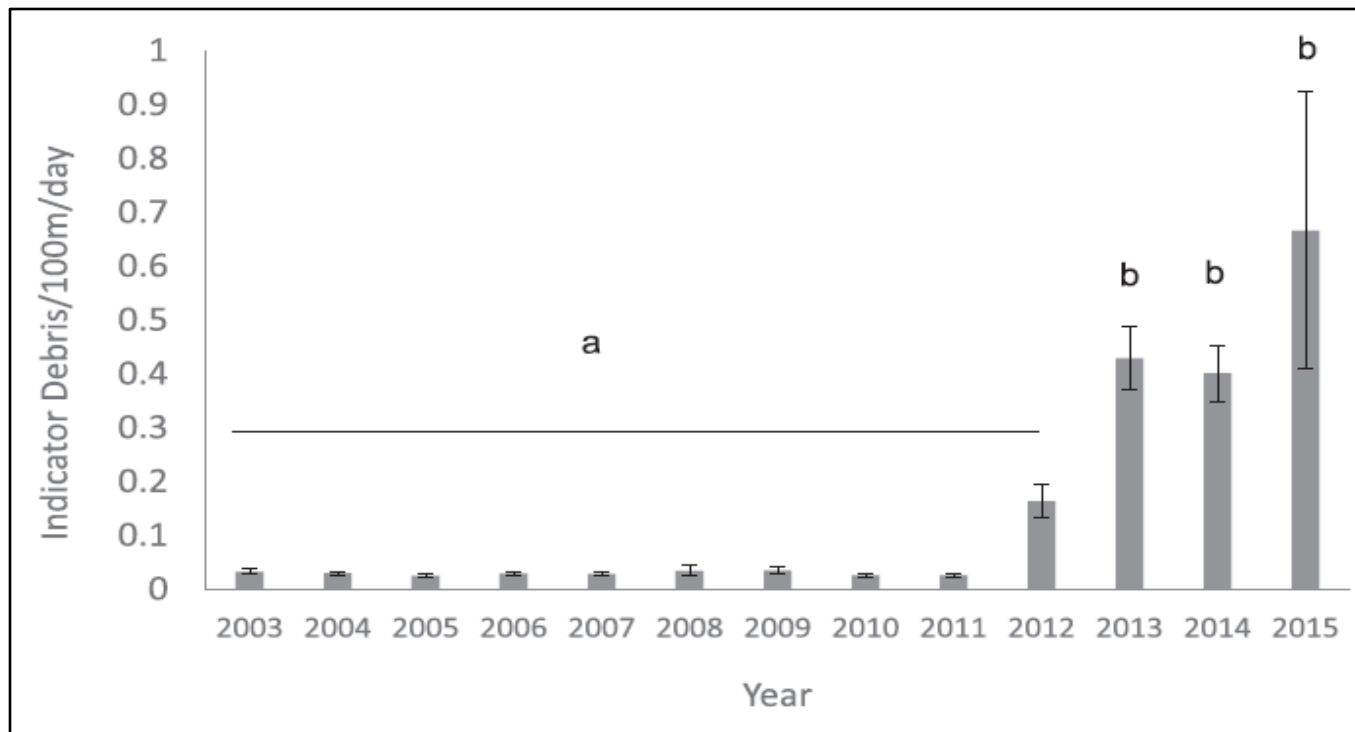
Marine Pollution Bulletin

journal homepage: [www.elsevier.com/locate/marpolbul](http://www.elsevier.com/locate/marpolbul)

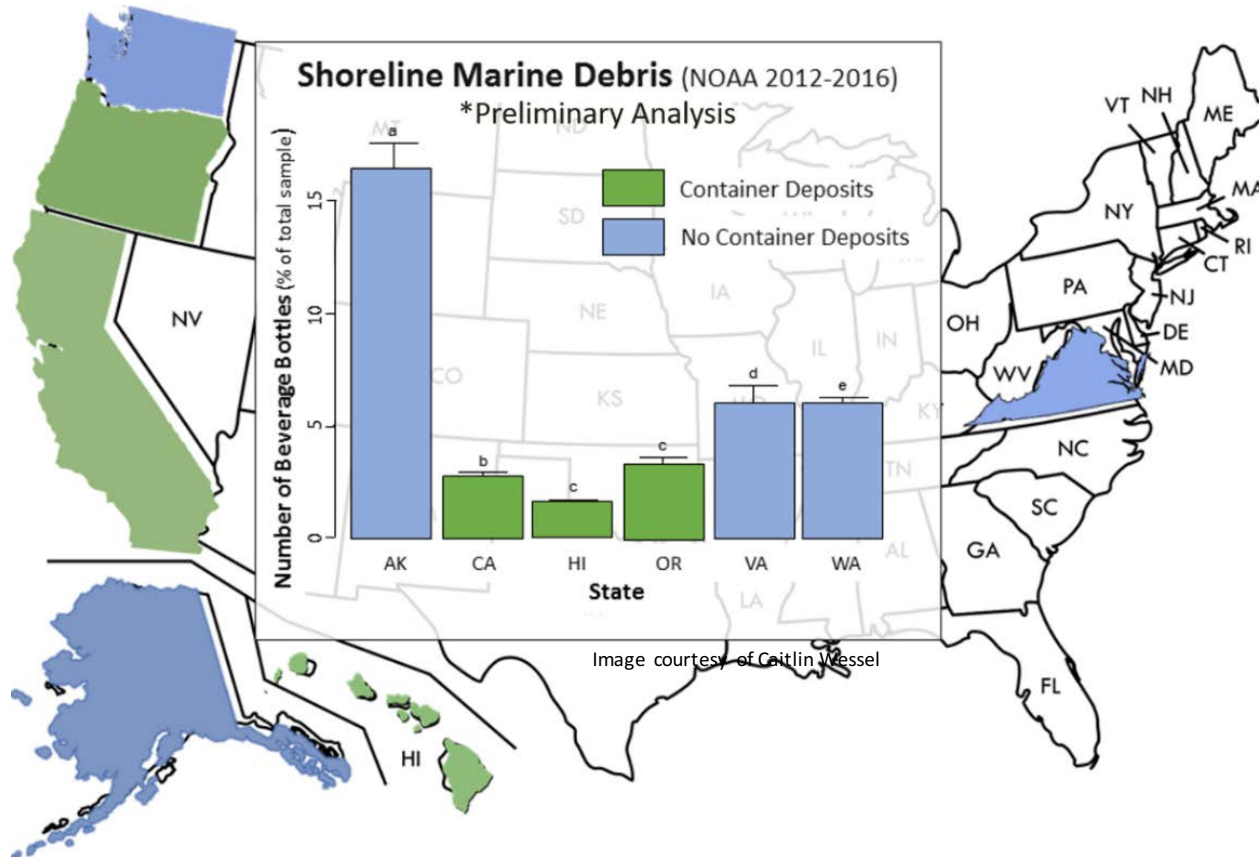


The influx of marine debris from the Great Japan Tsunami of 2011 to North American shorelines

Cathryn Clarke Murray<sup>a,b,\*</sup>, Nikolai Maximenko<sup>c</sup>, Sherry Lippiatt<sup>d,e</sup>



# Results – Policy Effectiveness



- Analysis of marine debris in the US (CSIRO and Ocean Conservancy)
- Schuyler et al. (in press), *Marine Policy*



A man wearing a red t-shirt, dark shorts, sunglasses, and a straw hat is smiling and pulling a net on a beach. The background shows the ocean and a blue sky. The net is filled with driftwood and debris.

THANK YOU!

**[Sherry.Lippiatt@noaa.gov](mailto:Sherry.Lippiatt@noaa.gov)**

Carlie Herring, MDP Research Coordinator

Amy Uhrin, MDP Chief Scientist

Krista Stegemann, MDP Communications

Naomi Wilkins, Database Developer

Lexter Tapawan, Database Support

Photo Credit Hawaii Wildlife Fund

Photo: Hawai'i Wildlife Fund



# Toolkit Composition

A form titled 'NOAA Marine Debris Toolkit - Accumulation Survey Debris Datasheet'. It includes fields for 'Survey Name', 'Date of Survey', 'Name of organization', 'Survey Type', 'Location', 'Observer Name', 'What are the coordinates of the site of your observation?', 'What is the width of the survey?', and 'Number of people conducting the survey'. There are also checkboxes for 'Beach cleaned' and 'Habitat (ground waters): river, stream, bay'. At the bottom, there are sections for 'Plastics' and 'Other debris'.

- 1) Teacher resources
- 2) Guidelines for data collection
- 3) Guidelines for data analysis
- 4) Community engagement & outreach





# Section 1. Teacher Resources

- Curriculum and lesson plans
- Educational articles
- Educational videos
- Educational websites

Organized by topics:

- Marine debris
- Ocean health
- Ocean protection
- Refuse/Reduce/Reuse/Recycle/Rot
- Take action

## Section 1: Teacher Resources Curriculum & Lesson Plans

Category	Title	Grade Level	Link	Source
1 Marine Debris	Winged Ambassadors <small>*Top choice for curriculum</small>	Grades 6-8 with extensions for 9-12	<a href="http://www.downloadwingedambassadors.org">http://www.downloadwingedambassadors.org</a>	NOAA Office of National Marine Sanctuaries, Okonko, Papahānaumokuākea Marine National Monument
2 Marine Debris	Marine Debris - Composition and Abundance	Grades 4-5	<a href="https://marine.debris.noaa.gov/curriculum/comprehensive-web-based-marine-debris-lessons-curriculum/">https://marine.debris.noaa.gov/curriculum/comprehensive-web-based-marine-debris-lessons-curriculum/</a>	Oregon Coast Aquarium NOAA Marine Debris Program
3 Marine Debris	Turning the Tide on Trash: A Learning Guide on Marine Debris	Grades 1-12	<a href="https://marine.debris.noaa.gov/turning-tide-trash/">https://marine.debris.noaa.gov/turning-tide-trash/</a>	NOAA Marine Debris Program
4 Marine Debris	The Educator's Guide to Marine Debris: Southeast and Gulf of Mexico	Grades 5-8	<a href="https://marine.debris.noaa.gov/educators-guide-marine-debris-southeast-and-gulf-mexico/">https://marine.debris.noaa.gov/educators-guide-marine-debris-southeast-and-gulf-mexico/</a>	NOAA Marine Debris
5 Marine Debris	"How can a model describe how microplastics move in the ocean?"	Grades 6-12	<a href="http://www.montereybayaquarium.org/montereybayeducation/curriculum/aquarium-6-12-grade-in-a-bottle-fishes.pdf">http://www.montereybayaquarium.org/montereybayeducation/curriculum/aquarium-6-12-grade-in-a-bottle-fishes.pdf</a>	Monterey Bay Aquarium
6 Marine Debris	"Where can you find plastic in the water column and how might it affect the animals that live there?"	Grades 6-8	<a href="http://www.montereybayaquarium.org/montereybayeducation/curriculum/aquarium-6-8-plastics-in-the-water-column.pdf">http://www.montereybayaquarium.org/montereybayeducation/curriculum/aquarium-6-8-plastics-in-the-water-column.pdf</a>	Monterey Bay Aquarium
7 Marine Debris	C-MORE Science Kits - Marine Debris	Grades 8-12	<a href="http://kempacademy.hawaii.edu/cmore/marine-debris/">http://kempacademy.hawaii.edu/cmore/marine-debris/</a>	University of Hawaii

## Educational Articles

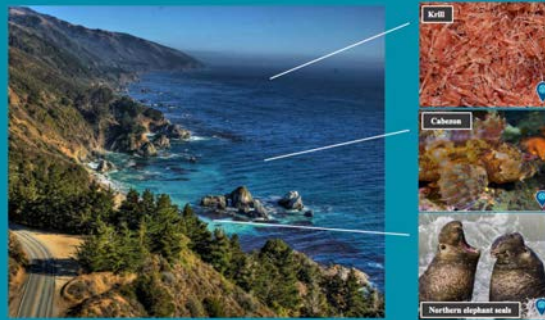
Category	Title	Grade Level	Link	Partner Source
1 Marine Debris	Innovative Solutions to Tackling Plastic Pollution in the Ocean	Grades 4-12	<a href="http://response.restoration.noaa.gov/about/media/innovative-solutions-tackling-plastic-pollution-ocean.html">http://response.restoration.noaa.gov/about/media/innovative-solutions-tackling-plastic-pollution-ocean.html</a>	NOAA; Office of Response and Restoration
2 Marine Debris	The Best Way to Deal with Ocean Trash	Grades 4-12	<a href="http://news.nationalgeographic.com/news/2014/04/140414-ocean-garbage-patch-plastic-pacific-debris/">http://news.nationalgeographic.com/news/2014/04/140414-ocean-garbage-patch-plastic-pacific-debris/</a>	National Geographic
3 Marine Debris	Trash Free Seas International Coastal Cleanup Report	Grades K-12	<a href="http://www.oceanconservancy.org/trash-free-seas-international-coastal-cleanup-and-results/">http://www.oceanconservancy.org/trash-free-seas-international-coastal-cleanup-and-results/</a>	Ocean Conservancy
4 Marine Debris	Ocean Trash: 5.25 Trillion Pieces and Counting, But Big Questions Remain	Grades 4-12	<a href="http://news.nationalgeographic.com/news/2015/01/150106-ocean-plastic-sea-trash-science-marine-debris/">http://news.nationalgeographic.com/news/2015/01/150106-ocean-plastic-sea-trash-science-marine-debris/</a>	National Geographic
5 Marine Debris	Leading Ocean Advocacy Groups Join Forces to Tackle Microfiber Pollution	Grades 6-12	<a href="https://www.theguardian.com/environment/2015/sep/07/microfiber-pollution-ocean-advocacy-groups-alliance">https://www.theguardian.com/environment/2015/sep/07/microfiber-pollution-ocean-advocacy-groups-alliance</a>	The Guardian
6 Marine Debris	Bottles, Bags, Ropes and Toothbrushes: the Struggle to Track Ocean Plastics	Grades 9-12	<a href="http://www.nature.com/news/bottles-bags-ropes-and-toothbrushes-the-struggle-to-track-ocean-plastics-1.20432">http://www.nature.com/news/bottles-bags-ropes-and-toothbrushes-the-struggle-to-track-ocean-plastics-1.20432</a>	Nature
7 Marine Debris	Understanding Plastic Pollution: A Call for Community Action	Grades 6-12	<a href="http://www.huffpost.com/lonely-whale-foundation/understanding-plastic-pollution-a-call-for-community-action_b_10316800.html">http://www.huffpost.com/lonely-whale-foundation/understanding-plastic-pollution-a-call-for-community-action_b_10316800.html</a>	Huffington Post – the Lonely Whale Foundation
8 Marine Debris	Photos: 1,300 Students Make Coastal Cleanup their Mission for the Day	Grades K-12	<a href="http://www.occregister.com/2016/09/03/photos-1300-students-make-coastal-cleanup-their-mission-for-the-day/">http://www.occregister.com/2016/09/03/photos-1300-students-make-coastal-cleanup-their-mission-for-the-day/</a>	The Orange County Register
9 Ocean Protection	Why it's Important to Save Our Seas' Last Pristine Places	Grades 6-12	<a href="http://www.nationalgeographic.com/magazine/2017/02/02/saving-our-seas-president-obama-oceans-conservation/">http://www.nationalgeographic.com/magazine/2017/02/02/saving-our-seas-president-obama-oceans-conservation/</a>	National Geographic
10 Plastic Reduction	100 Steps to a Plastic-Free Life	Grades K-12	<a href="https://myplasticfree.com/plastic-free-guide/">https://myplasticfree.com/plastic-free-guide/</a>	My Plastic Free Life
11 Plastic Reduction	10 Ways to Reduce Plastic Pollution	Grades K-12	<a href="https://www.nrdc.org/stories/10-ways-reduce-plastic-pollution">https://www.nrdc.org/stories/10-ways-reduce-plastic-pollution</a>	Natural Resources Defense Council

# Introduction to Marine Debris PowerPoint

The ocean is a place to explore and enjoy!



Take a look beneath the ocean's surface...



You will find magnificent organisms – small and large!

What is the difference between a macroplastic and a microplastic?

What is a macroplastic?



**Large piece of plastic** –  
measuring greater than 5 mm in diameter

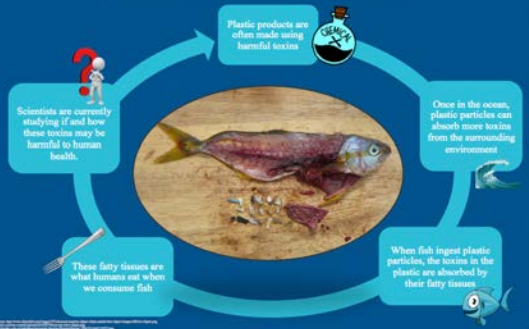
What is a microplastic?



**Small piece of plastic** –  
measuring less than 5 mm in diameter

How can plastic ingestion harm humans?

*Toxins, from plastic factory to fork*



**Journey to microplastics**

How do big plastic pieces break down?



When plastic litter interacts with waves and sunlight it breaks down into tiny little pieces.

What will YOU do to protect the ocean & the organisms that depend on it?





# PowerPoint Presentation Notes

## Introduction to Marine Debris

### PowerPoint Presentation Notes

Check out the 'Introduction to Marine Debris' PowerPoint Presentation:  
[<https://marinedebris.noaa.gov/curricula/marine-debris-monitoring-toolkit-educators/>]

SLIDE 1: Intro Slide

SLIDES 2 – 8: **There is one global ocean system** - visit National Ocean Service <http://oceanservice.noaa.gov/facts/howmanyoceans.html>

The ocean covers 71 percent of the Earth's surface and contains 97 percent of the planet's water. More than 95 percent of the underwater world remains unexplored.

SLIDES 9 – 12: **Thank You Ocean Report** – "The ocean takes care of us. Let's return the favor." <http://www.thankyouocean.org/>

"The ocean is a vital resource that provides food, water, commerce, recreation, medicine and even the air we breathe. Today, our ocean faces unprecedented threats from pollution, trash, declining fisheries and multiple impacts from climate change."

For more information about the ocean, visit **National Ocean Service**, America's ocean and coastal agency - <http://oceanservice.noaa.gov/about/>

SLIDES 13 – 17: **National Marine Sanctuaries**, <http://sanctuaries.noaa.gov/>

FAQs, <http://sanctuaries.noaa.gov/about/fags/welcome.html>

History, <http://sanctuaries.noaa.gov/about/history/welcome.html>

The National Marine Sanctuary System is composed of 13 national marine sanctuaries and two marine national monuments. The sites range in size from less than one square mile of **Monitor National Marine Sanctuary** to almost 583,000 square miles of **Papahānaumokuākea** (Hawaiian name meaning 'a sacred name, a sacred place') **Marine National Monument**.

SLIDE 18: **NOAA** - <http://www.noaa.gov/>

NOAA history - <http://www.history.noaa.gov/index.html>

The National Oceanic and Atmospheric Administration (NOAA) is a federal agency that is within the Department of Commerce. Similar to NASA, where NASA focuses on space and aeronautics, NOAA focuses on the ocean and atmosphere.

NOAA is concerned with the conditions of our ocean and atmosphere and informing people about the changing conditions around them.

NOAA's missions include:

- Science, Service, and Stewardship.
- To understand and predict changes in climate, weather, ocean, and coasts,
- To share that knowledge and information with others, and
- To conserve and manage coastal and marine ecosystems and resources.

NOAA's line offices include:

- National Weather Service
- National Marine Fisheries Service
- National Environmental Satellite Data, Information and Service
- National Ocean Service
- Office of Oceanic and Atmospheric Research
- Office of Program Planning and Integration

- Broken down by each slide
- Includes talking points for each section
- Provides webpages for more information
  - Help prep for presentation
  - Encourage students to conduct their own research to learn more

*Presentation use is flexible, feel free to present on as much or as little as desired.*

# Section 2. Guidelines for Data Collection

- Safety protocol
- Survey type
  - Accumulation surveys
- Site selection
- Datasheets
- Recommended monitoring supplies
- Photo identification guide





# Safety First!



Photo credit: NOAA Marine Debris Program

Interacting with marine mammals is **very dangerous**. At all times, keep your students away from any live marine mammals you may come across during your survey. If the animal appears to be injured, call your local rescue network.

<http://www.fisheries.noaa.gov/pr/health/report.htm>

- Emergency response
- Weather & tidal conditions
- Required first aid items
- Beach hazards
- ‘No touch’ list
- Stranded and/or injured animals

# What is an accumulation survey?

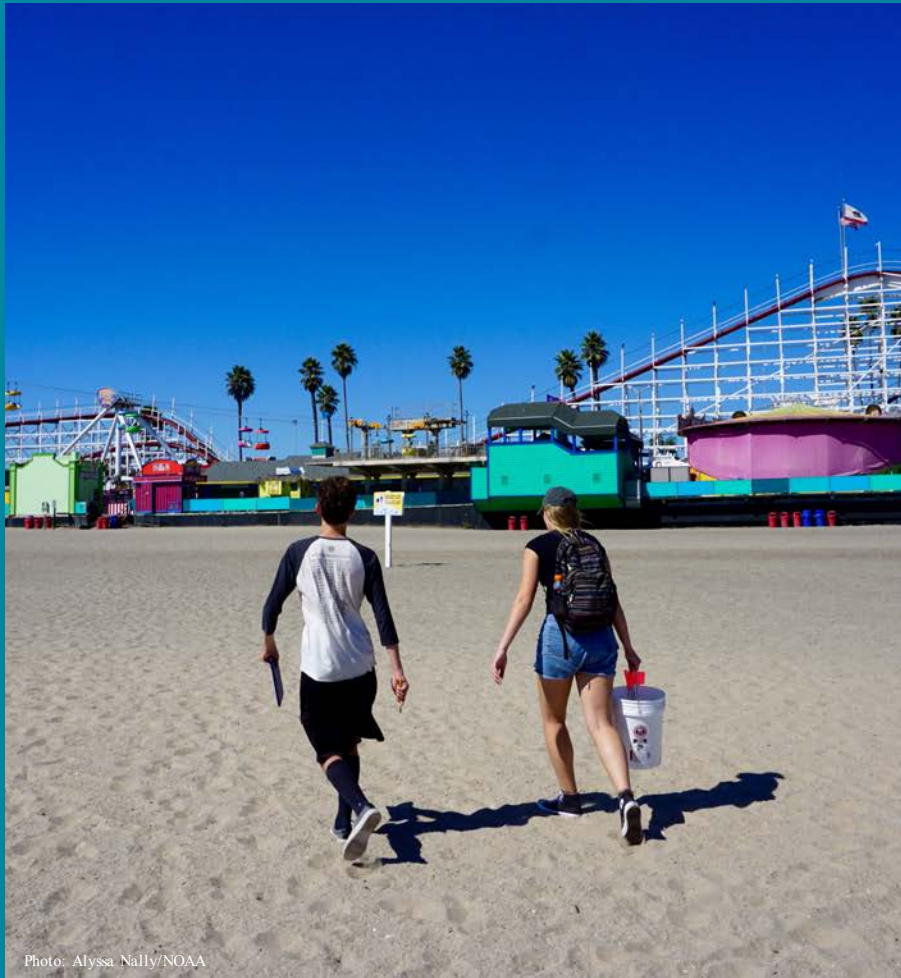
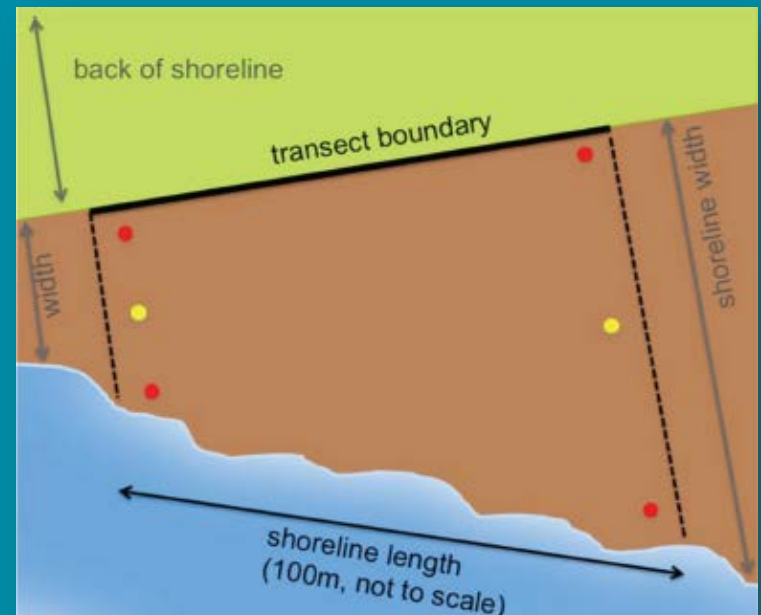


Photo: Alyssa Nally/NOAA


Accumulation surveys provide information of the rate of deposition of debris onto the shoreline.





# Datasheets

- Pre-survey data collection
- Survey Debris Datasheet
  - Single page, front & back
  - Designed for ease of use
  - Measuring tool


**NOAA Marine Debris Toolkit - Accumulation Survey Debris Datasheet**

Surveyor name(s): \_\_\_\_\_  
 Date of survey: \_\_\_\_\_ Number of people conducting the survey: \_\_\_\_\_

**Survey Site Information** \_\_\_\_\_  
 Name of organization (School name, group name, etc.): \_\_\_\_\_  
 Survey type: Accumulation Survey

**Location** \_\_\_\_\_  
 Location type (check one):  Beach (coastal)  Watershed (inland waterway; river, stream, lake)  
 Shoreline name (beach, stream, river or park name): \_\_\_\_\_ \_MDSchool

What are the coordinates of the start of your shoreline site? What are the coordinates of the end of your shoreline site?  
*Record coordinates in decimal degrees.* *Record coordinates in decimal degrees.*

Latitude	Longitude	Latitude	Longitude

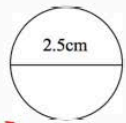
What is the width of the beach? \_\_\_\_\_  
*Measure the width of the beach by measuring the meters from the water's edge to the back of the shoreline.*

**Time** \_\_\_\_\_  
 Survey start time: \_\_\_\_\_ Survey end time: \_\_\_\_\_  
 Time of low tide (list time of most recent, or upcoming low tide): \_\_\_\_\_  
 Season (winter, spring, summer, fall, tropical wet, etc.): \_\_\_\_\_  
 Date of previous survey (leave blank if this is your first survey): \_\_\_\_\_  
 Recent storm activity: \_\_\_\_\_  
*Describe any significant storm activity within the previous week.*

**Large Debris** (larger than 1 ft.; *do not include these items in your tallies*) \_\_\_\_\_


Item type (vessel, net, etc.)	Status (sunken, stranded, buried)	Approximate width (meters)	Approximate length (meters)	Description


Please list any notes you took on debris items and/or description(s) of items you were unable to classify below.



2.5cm

Only record debris items that are larger than 2.5 cm on the back of this datasheet.


 NATIONAL MARINE SANCTUARY FOUNDATION


 Cape Codder School

Marine Debris Toolkit  
for educators

# Photo Identification Guide

*complementary to the datasheets*

## Debris Collected

Total of tallies for each item should be added into the blue boxes at the end of your survey. Items listed as 'other' should be specified on the blue dotted line.

Example:  Other (Coffee stirrer) JHF III



### Plastic

Plastic fragments  Hard  Foamed  Film

Food wrappers  Beverage bottles

Other jugs or containers  Bottle or container caps

Cigar tips  Cigarettes

Disposable cigarette lighters  6-pack rings

Bags  Plastic rope/small net pieces

Buoys & floats  Fishing lures & line

Cups  Plastic utensils

Straws  Balloons - Mylar

Personal care products  Other [ \_\_\_\_\_ ]

### Metal

Aluminum/tin cans  Aerosol Cans

Metal fragments  Other [ \_\_\_\_\_ ]

### Glass

Beverage bottles  Jars

Glass fragments  Other [ \_\_\_\_\_ ]

### Rubber

Flip-flops  Gloves

Tires  Balloons - Latex

Rubber fragments  Other [ \_\_\_\_\_ ]

### Processed Lumber (no natural wood)

Cardboard cartons  Paper and cardboard

Paperbags  Lumber/building material

Other [ \_\_\_\_\_ ]

### Cloth/Fabric

Clothing & shoes  Gloves (non-rubber)

Towels/rag  Rope/hat pieces (non-nylon)

Fabric pieces  Other [ \_\_\_\_\_ ]

### Other/Unclassifiable

For assistance with classifying debris items, reference the Marine Debris Photo Identification Guide in this toolkit.

Before entering your data into the MDMAP database, combine all datasheets from each group participating in the survey into a single dataset. Only one dataset per survey should be submitted to the MDMAP database.

### 6-Pack Rings



6-Pack Rings are composed of a semi-flexible (but very strong) plastic material. They are used in the packaging of soda cans and other types of beverages.

### Bags



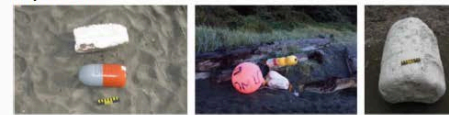
Plastic bags are made of a thin film. Examples include bags used for: dry cleaning, newspapers, bread, frozen foods, bulk ice, fresh produce, grocery bags, household garbage, etc. As long as at least half of the bag is present, these items should be recorded as bags.

### Plastic Rope & Small Net Pieces



Plastic rope and small net pieces are composed of synthetic material rather than cloth or fabric. Fishing line is NOT included in this category, but should be recorded under "Fishing Lures & Line".

### Buoys & Floats



Generally associated with fishing and boating activities, a buoy floats at the surface and is attached to the seafloor. These come in various sizes, shapes and colors.

### Fishing Lures & Line



Fishing lures come in a variety of shapes, sizes and materials depending on their function. Modern types are made of plastic with hooks and eyes for lures. Fishing line with lures attached should be recorded as one item.

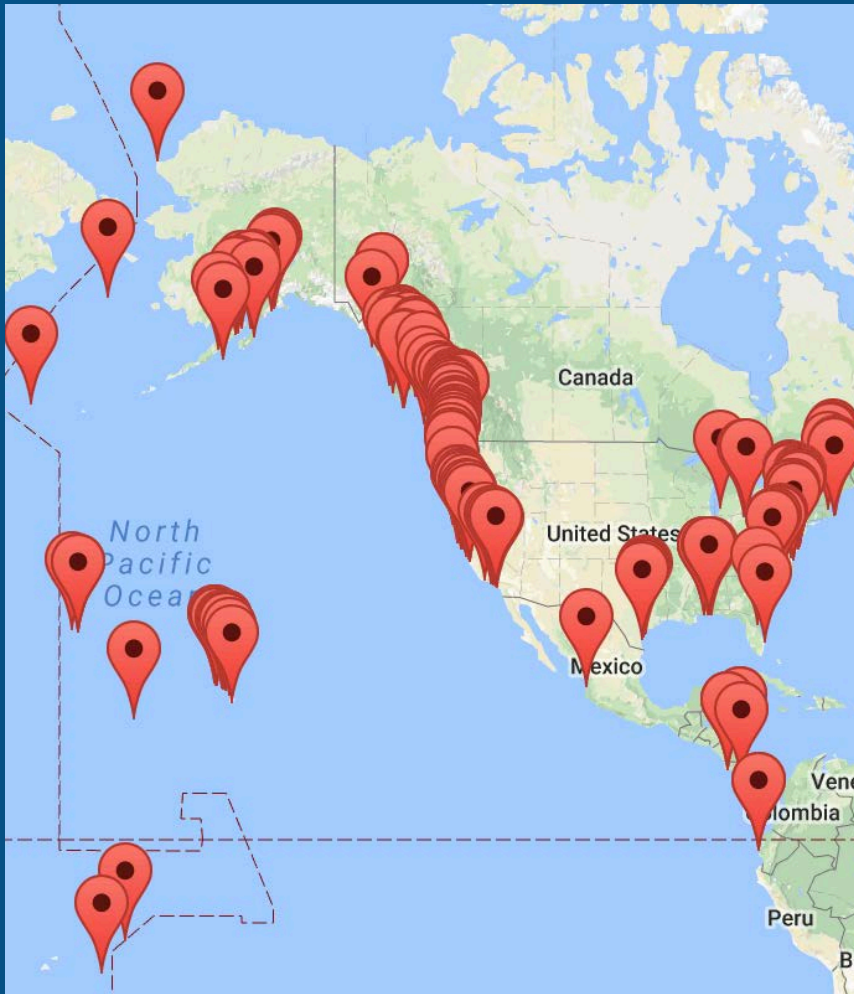
### Cups



Cups can be made of hard or foamed plastic. Most paper cups are coated with a plastic film. Plastic coated cups are included in this category.



# Section 3. Guidelines for Data Entry & Analysis



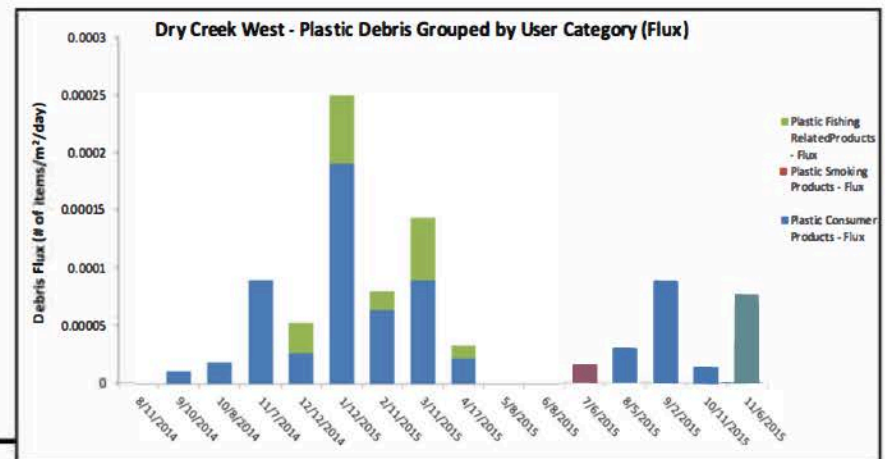
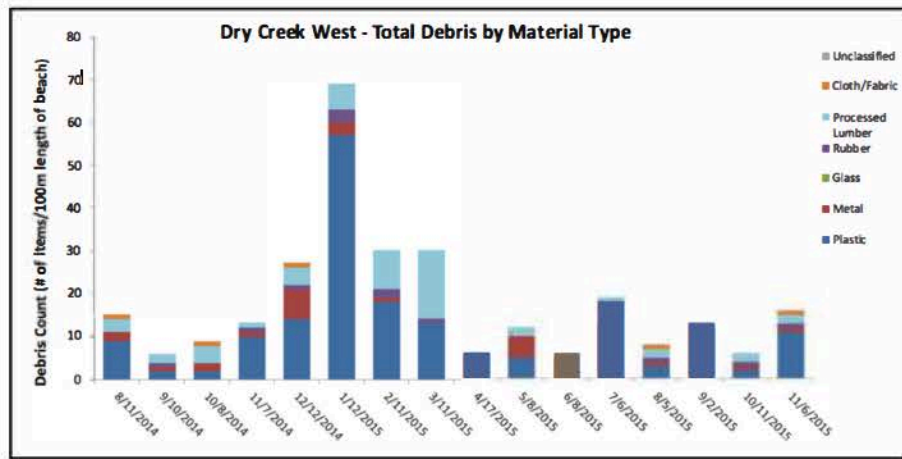
Entering data into the MDMAP database

- Step-by-step directions
- Site naming
  - `_MDschool`
- Upload photos
- Search for other participants
- Download data for analysis

MDMAP Database: <https://mdmap.orr.noaa.gov/>

# Data Analysis

*the importance of creating visual displays*



- Analyze patterns in debris by building figures
- Data analysis templates
  - Excel files with pre-existing formulas
- Create infographics



# Introducing Students to Citizen Science

- Apply scientific method
- Team building experience
- Form connections between personal choices & environmental impacts
- Sense of community contribution
- Teach NGSS

*Most importantly...*

- Research isn't just for scientists!



# Section 4. Community Engagement and Outreach



Photo credit: Students for Zero Waste Week

- School activities list
- Action project ideas
- Writing to a member in your community

## Writing to a Member in Your Community

Sample formatting for a letter to your community members

Follow the below template to write an informative letter to your local community members (e.g. restaurants, business owners, letters to the editor, etc.). Remember to keep your letter brief, no longer than one page – typed.

Return Address	Your Name Address City, State Abbreviation Zip Code
Date	[insert date]
Community Member's Address	[insert community member's full name] Community member's Address City, State Abbreviation Zip Code
Salutation	Dear Mr. or Ms. [insert last name]:
Introduce yourself by stating your name, where you live, what school you attend	My name is [insert your name] and I live in [insert your city, state]. I am currently a [insert grade] student at [insert school name].
Why are you writing your fellow community member?	I am writing you to ask that you consider the impact marine debris has on our environment. [include a few sentences on how marine debris has an impact on the environment and the organisms living within it. Inform your fellow community member of your efforts to keep the environment clean through marine debris monitoring. If you have completed your survey(s) add a sentence or two about what you found. Finish up this section with a sentence about how you think they may be able to help protect marine environments. Be specific!]
Ask for a response	I appreciate your help and request that you please consider sending me a response to let me know your thoughts on this issue.
Thank your fellow community member for his/her time	Thank you for your time.
End with your signature	Sincerely, [sign your name] [clearly write your name if your signature is difficult to read]



# School Activities

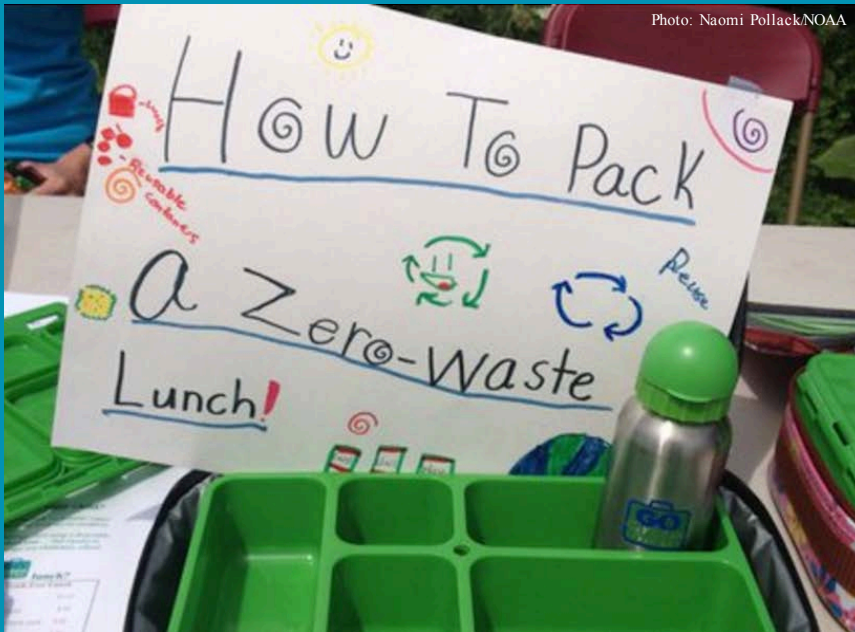


Photo: Naomi Pollack/NOAA

Activities and resources to help educate, energize and engage your students as they learn how to combat marine debris.

Examples:

- Debris scavenger hunt
- Art for change
- Waste audits
- “Do without” week
- Public service announcements
  - and many more!



Photo: Students for Zero Waste Week/NOAA



Photo: Naomi Pollack/NOAA

# Action Project Ideas

Split into categories:

- Marine debris art
- Community engagement
- Campus engagement
- Marine debris education

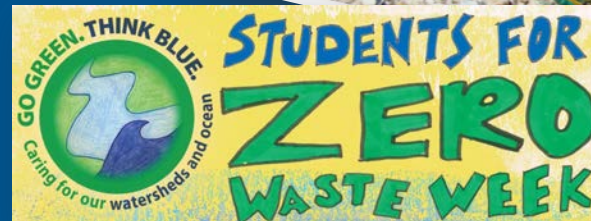




Photo: Alyssa Nally/NOAA



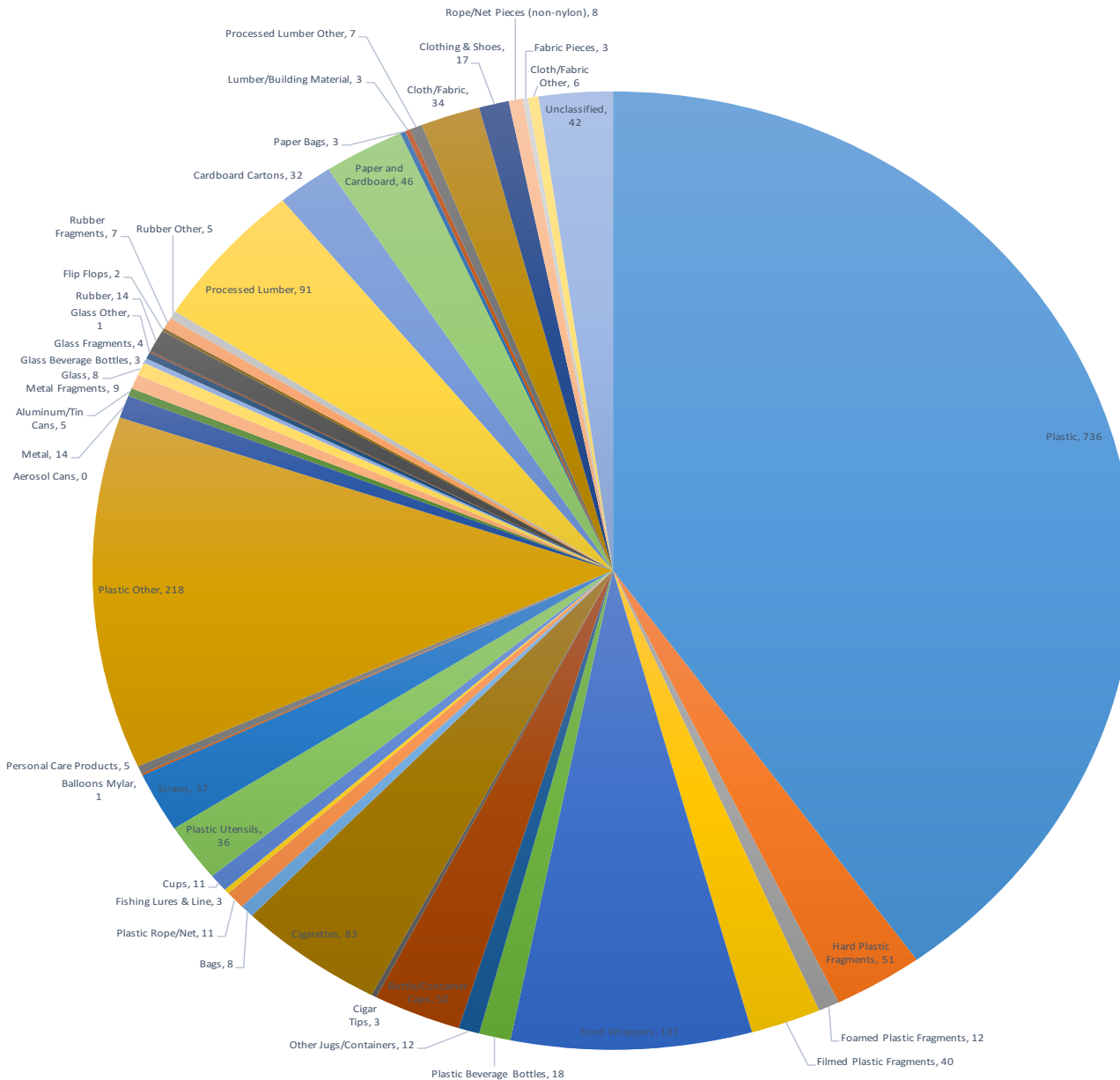
***Tips from the field:***

Practice logging longitude and latitude with your students on school grounds before taking them to your survey site. Start by taking them to the four corners of your campus!

# Program Pilot

- Scotts Valley High School – Scotts Valley, CA
- Reviewed by teachers
- Tips from the field

## Scotts Valley High School Marine Debris Survey - Debris Items Collected



# Monitoring Efforts

Whether you plan to use this with one school, one class, or one club – your monitoring efforts are important!



# Feedback

- First kit of its kind
- All educators' needs are different
- Ensure this kit works for a wide range of educators
- Evolve to best fit students' needs

## Marine Debris Toolkit - Teacher Reflection Form

Thank you for utilizing the Marine Debris Toolkit! Your feedback is valuable – please take the time to fill out the following reflection form so we can determine how to mold this kit to best suit your needs. Completed forms should be scanned and emailed to Seaberry Nachbar: [seaberry.nachbar@noaa.gov](mailto:seaberry.nachbar@noaa.gov).

What did you find most helpful about this kit?
What did you find least helpful about this kit?
Did you utilize any of the recommended curricula?
How effective was the use of the recommended curriculum?
Which survey method did you end up utilizing? Why?

# Make this kit your own



Bottle cap mural at Carmel River School – Carmel, CA

- Use as much or as little as you desire
- Develop a method that works best for you and your students' needs
- Let us know how we can help you with your monitoring efforts





**How will you choose?**



To download the Marine Debris Toolkit visit:

<https://marinedebris.noaa.gov/curricula/marine-debris-monitoring-toolkit-educators>



# Thank you

## Questions?

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