WORKSHOP ON CITIZEN SCIENCE FOR SDG 14.1.1.B

16 December 2020

Part 1- Introduction to SDG Reporting Requirements and CS Projects

Agenda

Part 1- Introduction to SDG Reporting Requirements and CS Projects

- Introduction, goals, and agenda
- Introduction to SDG 14.1.1.b reporting requirements
- Presentations from three CS projects on their activities, protocols, and data
- Q&A and moderated discussion

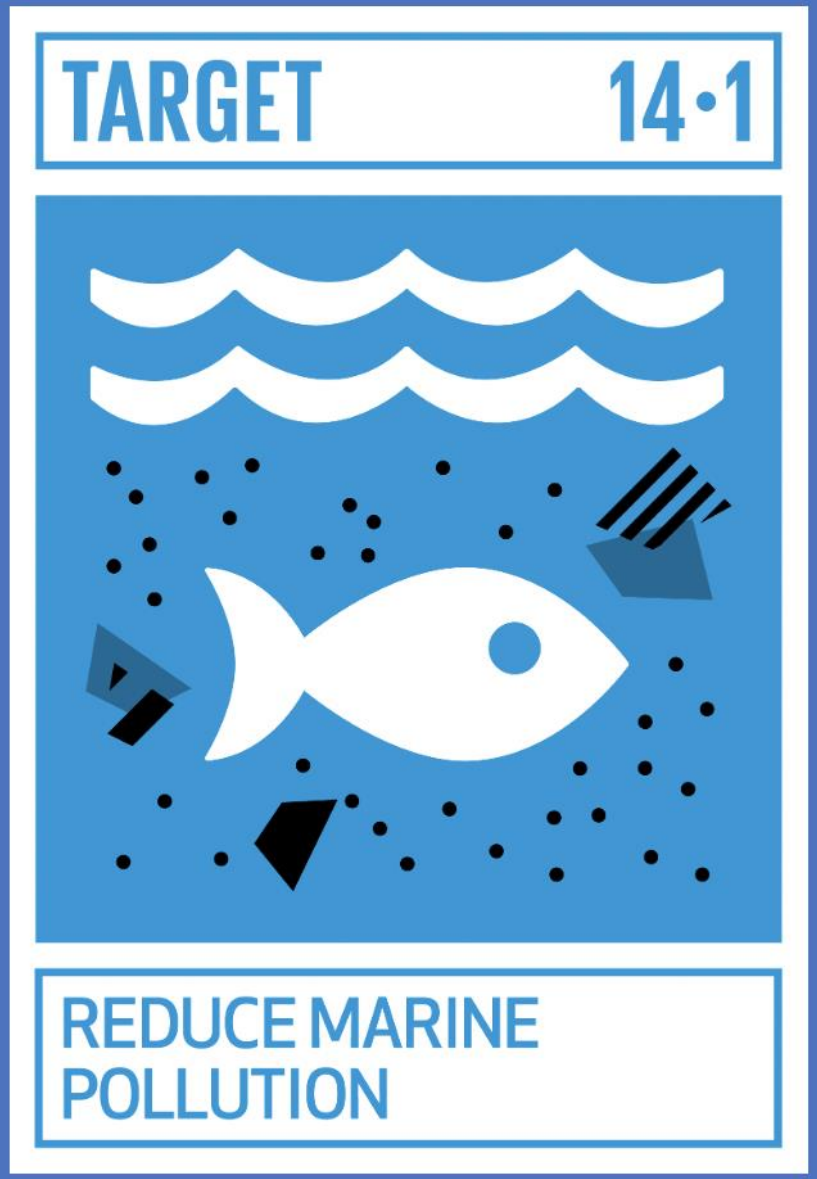
Part 2- Data Collection and Aggregation for SDG Reporting and Beyond

- Report on a pilot exercise collecting data for 14.1.1.b
- UNEP's analysis of existing data
- Q&A and moderated discussion
- Next steps for creating a "Handbook" of how CS can be used for SDG 14.1.1. reporting, and next steps for the GPML digital platform

Introduction, goals, and agenda

Indicator 14.1.1b

SDG and Environment Statistics
Unit - UNEP



Indicator 14.1.1b

SDG Target 14.1 and Indicator 14.1.1

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Target 14.1:

"By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution"

Indicator 14.1.1:

"Index of coastal eutrophication and floating plastic debris density"

Indicator 14.1.1b:

"Plastic debris density"

UNEP is the custodian agency for this indicator

Why is this SDG Important?

- Plastic pollution is the most widespread problem affecting the marine environment. It also threatens ocean health, food safety and quality, human health, coastal tourism, and contributes to climate change.
- According to UNESCO's Intergovernmental Oceanographic Commission (IOC-UNESCO) there are also four main types of indicators for marine litter:

1. Plastic debris washed/deposited on beaches or shorelines (beach litter),
2. Plastic debris in the water column,
3. Plastic debris on the seafloor/seabed,
4. Plastic ingested by biota (e.g., sea birds).

Definition

- Eutrophication – excess nutrient loading into coastal environments from anthropogenic sources, resulting in excessive growth of plants, algae and phytoplankton.
- Coastal Zone – national Exclusive Economic Zone (EEZ) (200 nautical miles from the coast) as outlined by the United Nations Convention on the Law of the Sea.
- Marine litter - any persistent, manufactured or processed solid material which is lost or discarded and ends up in the marine and coastal environment.

Limitations

It is assumed that countries would use the data to actively make decisions, but as oceans are transboundary, it makes this decision-making complex.

Methodology – Approach

- Level 1: Globally available data from earth observations and modelling
- Level 2: National data which will be collected from countries (through the relevant Regional Seas Programme, where applicable (i.e., for countries that are a member of a Regional Seas Programme)

Monitoring parameters for marine plastic litter to track progress against SDG indicator 14.1.1b

Monitoring parameters (and methods)	Level 1	Level 2	Level 3
Plastic patches greater than 10 meters*	X		
Beach litter originating from national land-based sources	X		
Beach litter (beach surveys)		X	
Floating plastics (visual observation, manta trawls)		X	
Water column plastics (demersal trawls)		X	
Seafloor litter (benthic trawls (e.g. fish survey trawls), divers, video/camera tows, submersibles, remotely operated vehicles)		X	
Beach litter microplastics (beach samples)			X
Floating microplastics (manta trawls, e.g. Continuous Plankton Recorder)			X
Water column microplastics (demersal plankton trawls)			X
Seafloor litter microplastics (sediment samples)			X
Plastic ingestion by biota (e.g. birds, turtles, fish)			X
Plastic litter in nests			X
Entanglement (e.g. marine mammals, birds)			X
Plastic pollution potential (based on the use and landfilling of plastics)			X
River litter			X
Other parameters related to plastic consumption and recycling			X
Health indicators (human health and ecosystem health)			X

Methodology – Level 2

- ***Beach litter (average count of plastic items per km2)***
- Beach litter surveys following the UNEP/IOC-UNESCO operational guidelines, are the source of the statistical data for this indicator.

- National efforts to collect data on beach litter can be supported by campaigns to engage members of the public as volunteers in beach clean-ups or citizen science programmes.

- Specific instructions on how to conduct citizen science beach surveys are included in the GESAMP Guidelines (GESAMP 2019). They provide resources on previous citizen science projects and guidance for ensuring sound data collection and management with citizen science.

Methodology – Level 2

- It is important to consider the timing of surveys in order to properly plan effective surveys.
- Two main types of surveying beaches include:
  - Rapid assessment surveys - best conducted in response to natural disasters, to build a baseline for future surveys and/or to identify beach litter hotspots
  - Routine shoreline monitoring.
- The average count of plastic items can be computed for each area sampled.

Data

- Data sources – national government, Citizen Science projects.
- Data Collection – through National Surveys, Public Campaigns and Citizen science projects
- Data will be available for all member states
- First data reporting is expected to be compiled in **2021.**
- Data is already being collected.
- Data processing will be handled by UN Environment Programme and partners.

Example – Step by step guide

SDG Indicator 14.1.1b: Floating Plastic debris density

Proxy indicator: Beach litter

Methodology: Beach litter surveys following the UNEP/IOC-UNESCO operational guidelines

Step one: Identify the national authority responsible for gathering data and reporting on marine pollution and the agency/ organisation responsible for implementing beach litter surveys.

Step two: Explore the use of existing data which is being collected by citizen science initiatives and beach clean ups.

Step three: Conduct beach litter surveys following the UN Environment/IOC-UNESCO operational guidelines, which are provided in Appendix 4.

Summary

- Beach litter is the core parameter that all countries should monitor and report on. Where in-country capacity or opportunities exist to conduct more extensive marine litter monitoring, countries can also conduct surveys of floating plastics, plastics on the seafloor or microplastics.
- There is an urgent need to increase public awareness about the adverse effects of plastic pollution on marine ecosystems and resources.
- Involving stakeholders will help in creation of action plans.
- The GESAMP guidelines will provide key information for the development of a methodology for this agreed SDG indicator, which may combine in situ data and modelling (surface water circulation).

Thank you !

UN environment

UN Environment Programme

www.unep.org

EEA's Marine Litter Watch: the value of citizen/community science

Mustafa Aydın, EEA

mustafa.aydin@eea.Europa.eu

MLW Initiative

- Putting litter problem and its environmental effects on to spotlight
- Awareness rising, change of behaviour
- A dataset consist of more than 2.000.000 litter items; quality checked and shared with EMODnet
- Using EU TGML joint list
- 2013: 6 communities, 2020: 40 communities including Mare Nostrum, BS NGO Network, EMBLAS, ANEMONE
- Becoming global with Blue Flag
- Added value of NGO experience (e.g: fresh water, terrestrial monitoring)
- A network of NGO effort evolving through 'monitoring'*: time for integration!

*MLW 'monitoring' is used for more organised and systematic beach surveys, and does not represent official country monitoring.

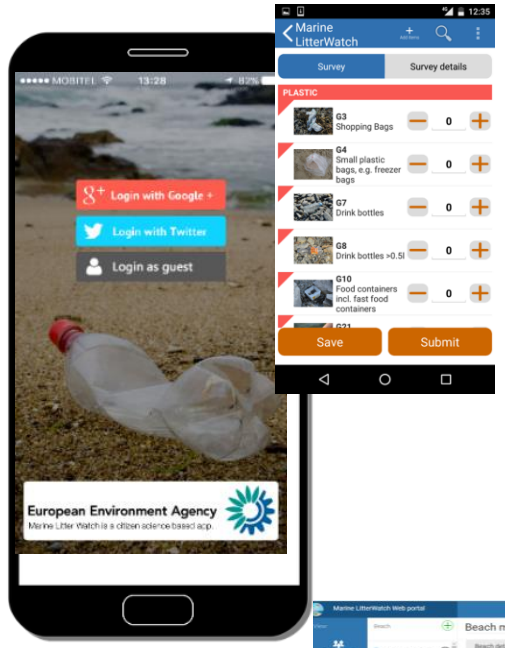
Value of the MLW

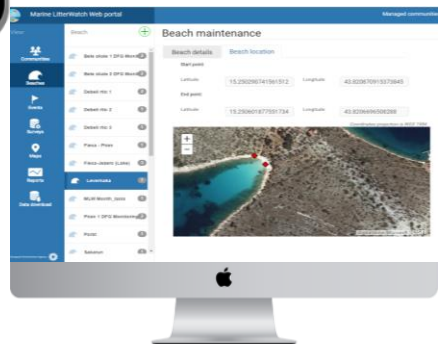
- Provides complementary data and information for EU MSFD and SUP Directive
- Provides input for EEA beach litter indicator
- Provides data and information for EEA marine litter assessments
- Input for SGD14.1: Prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution
- Improves pan-European collective working
- Helps for public awareness rising
- Enables the ownership of citizens and NGOs by utilising from their efforts effectively in European scale

Join or create a community*

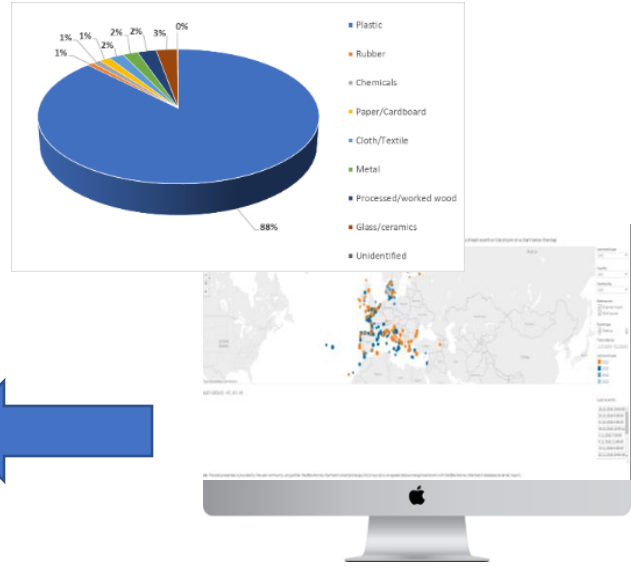
Carry out a survey

Upload your survey through the MLW app or MLW web portal





See your results at the MLW web page



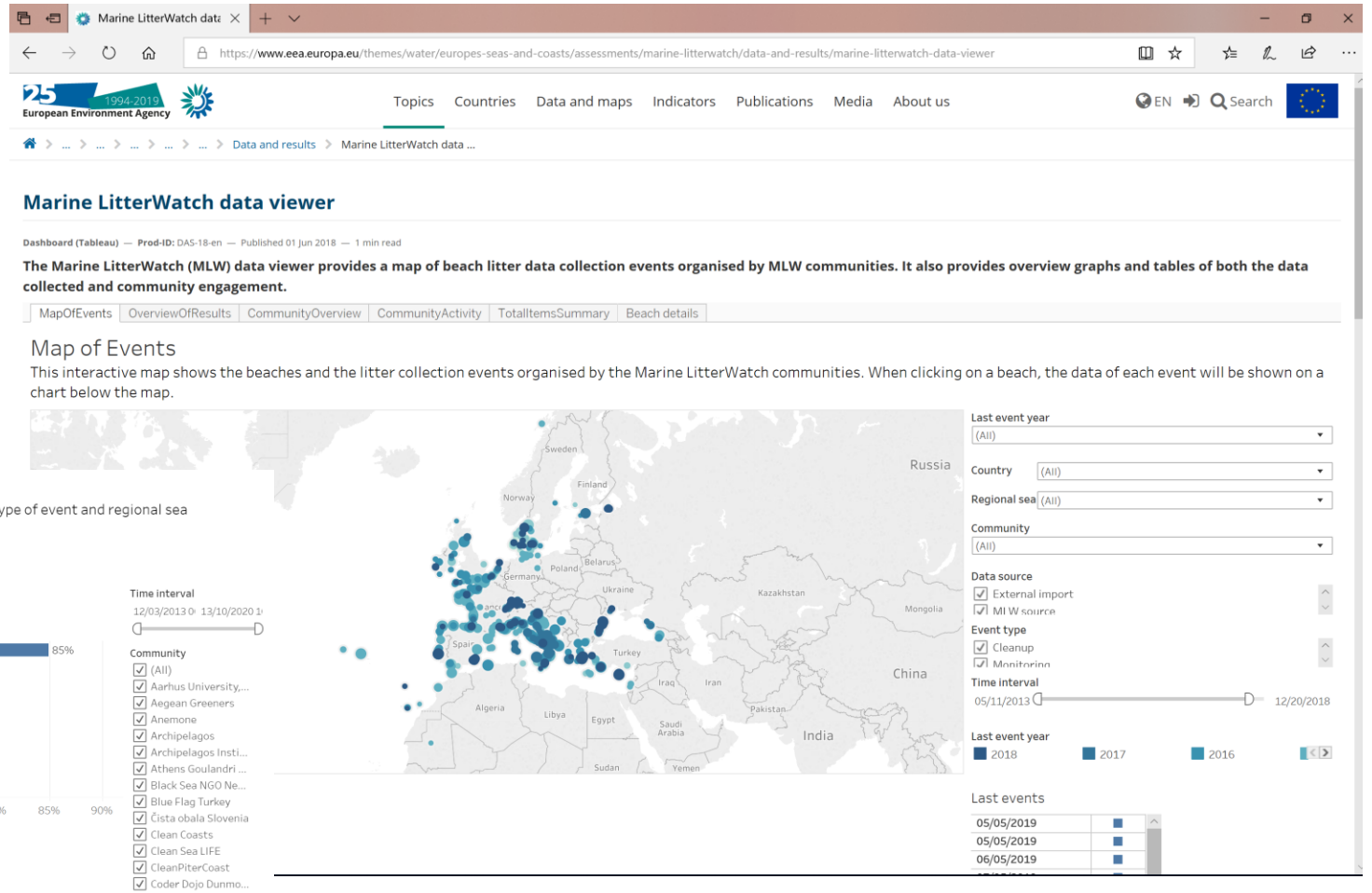
Use and share the information

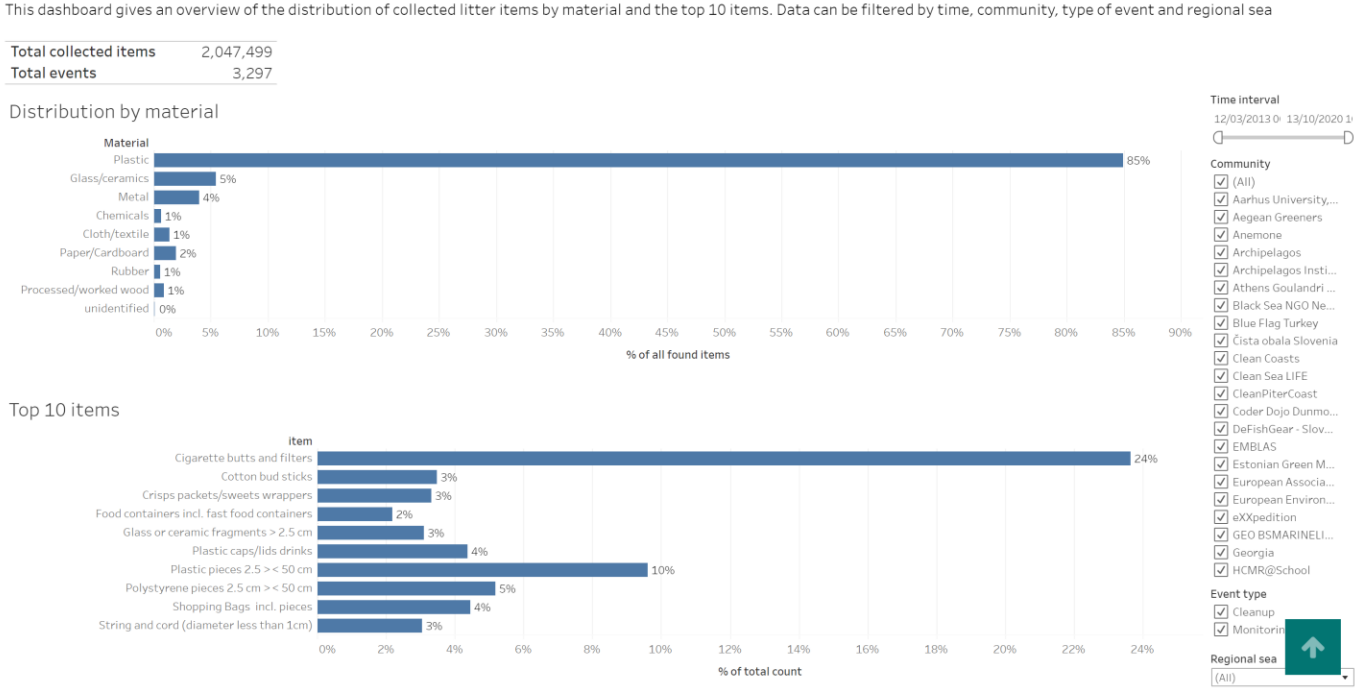
*To create a community and further details on using the app you may visit: https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/marine-litterwatch/get-started/how/how-does-it-work

Marine Litter Watch data viewer

Marine LitterWatch (MLW) data viewer provides a map of beach litter data collection events organised by MLW communities. It also provides overview graphs and tables of both the data collected and community engagement.

https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/marine-litterwatch/data-and-results/marine-litterwatch-data-viewer





Analysis of MLW database

- 1st MLW assessment: an EEA briefing
- 2nd MLW assessment: An ETC/ICM Report "MLW European Beach Litter Assessment" Available at: https://www.eionet.europa.eu/etcs/etc-icm/products/marine-litter-watch-mlw-european-beach-litter-assessment-2013-2019
- Four main questions were answered:

a) Does MLW data provide indications on beach litter trends from the European seas?

b) Are there differences in the amount and composition of beach litter among the regional seas?

c) Are there differences in litter composition from lakes, rivers and sea beaches?

d) Does MLW 'monitoring' data give more reliable results than clean-up data?

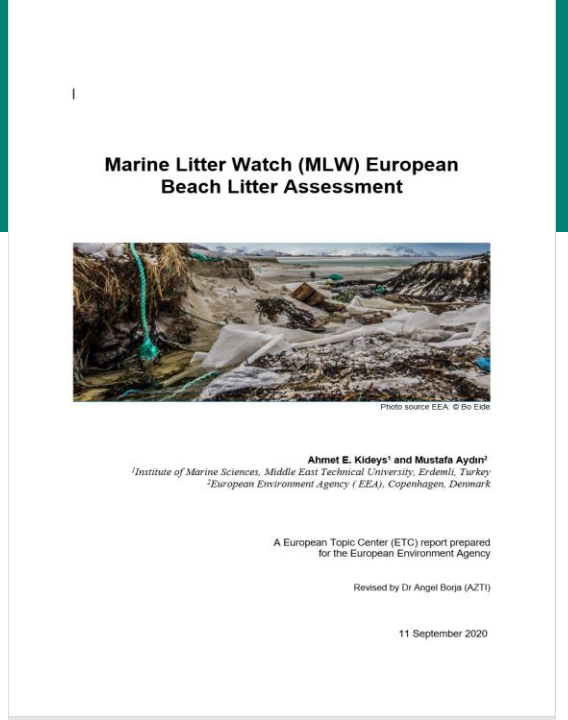

Marine Litter Watch (MLW) European Beach Litter Assessment

Photo source EEA: © Bo Eide

Ahmet E. Kideys[1] and Mustafa Aydın[2]
[1]Institute of Marine Sciences, Middle East Technical University, Erdemli, Turkey
[2]European Environment Agency (EEA), Copenhagen, Denmark

A European Topic Center (ETC) report prepared for the European Environment Agency

Revised by Dr Angel Borja (AZTI)

11 September 2020


Marine Litter Watch

Citizens collect plastic and data to protect Europe's marine environment

Marine Litter Watch is a European Environment Agency (EEA) initiative that aims to combat the plastic litter problem. It uses citizen science — scientific research conducted, at least partly, by members of the public — and mobile-phone technology to help individuals and communities come together to clean up Europe's beaches. Volunteers use the Marine Litter Watch app to form communities that collect litter from beaches and send data on the items found to the EEA. The initiative — set-up in 2014 and involving non-governmental organisations and research institutions — is the only pan-European platform that members of the public can use to co-ordinate clean-ups and record beach litter. The focus on citizens is designed to complement the collection of official marine litter data by national authorities and fill data gaps. As well as developing and hosting the app, the EEA is responsible for quality assurance of the data.

This briefing highlights the work and results of the Marine Litter Watch clean-up activities held on the beaches of Europe's four regional seas (the Baltic Sea, the Black Sea, the Mediterranean Sea and the North-East Atlantic Ocean) between 2014 and 2017. It also presents the top ten litter items found and attempts to link them to the most likely litter sources.

693 259 items collected

1 627 beach clean-up events

Look here for the Marine LitterWatch Community overview, showing the date when they started collecting data.

Photo: NOAA

Marine Debris Monitoring & Assessment Project (MDMAP)

Shoreline monitoring focused on macrodebris

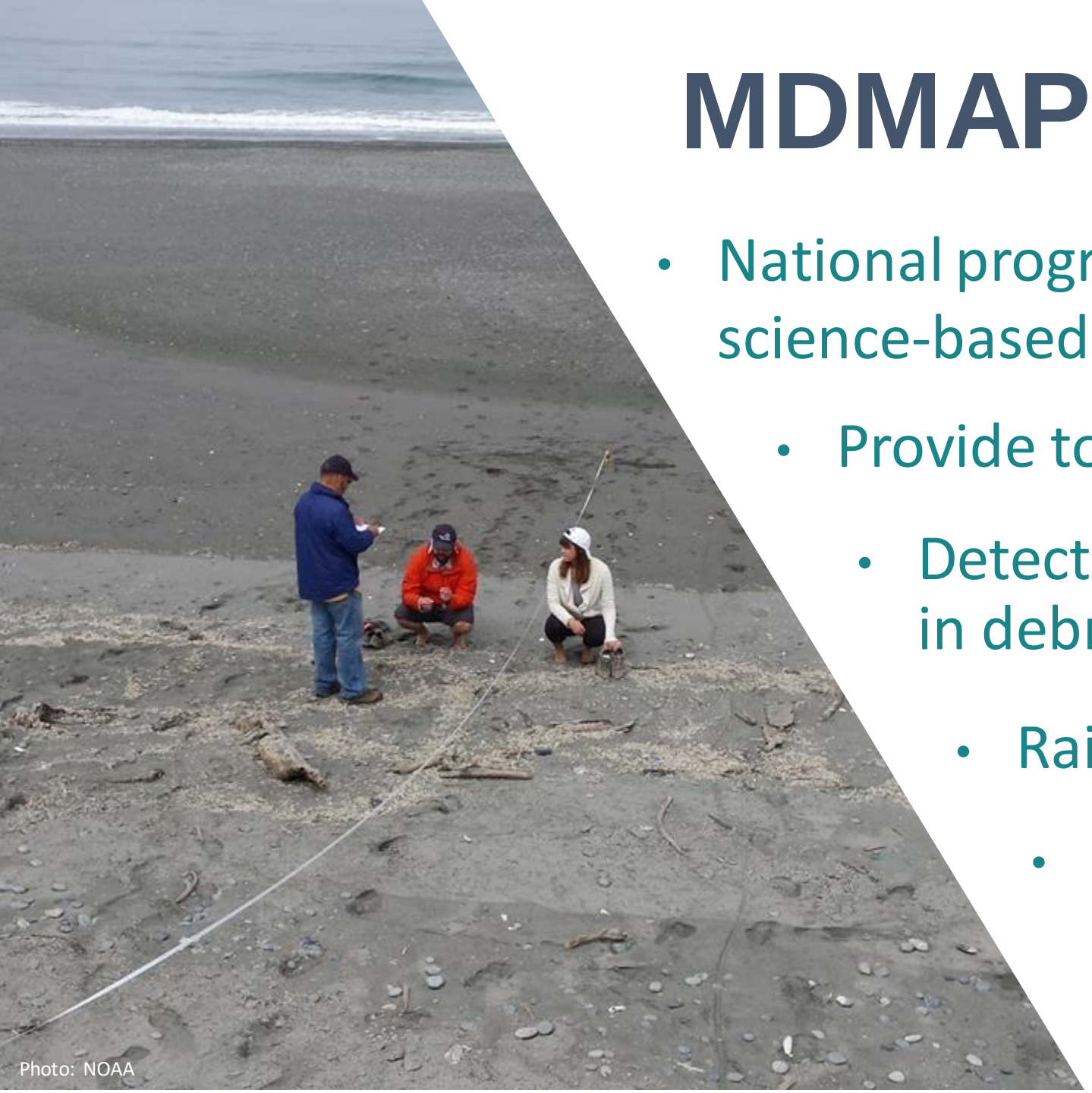


Photo: NOAA

MDMAP GOALS

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

MDMAP HISTORY

- 2009-2012: development + testing
- 2011: Japan Tsunami
- 2012: *Shoreline Field Guide*, recruited partners, launched database
- 2016: Get Started Toolbox launched
- 2017 OC/CSIRO National Assessment
- 2018: Examining Observer Bias study
- 2019: Partner feedback

443 sites

9,055 surveys

21 US States + PR

9 Countries

Accumulation (debris removed)

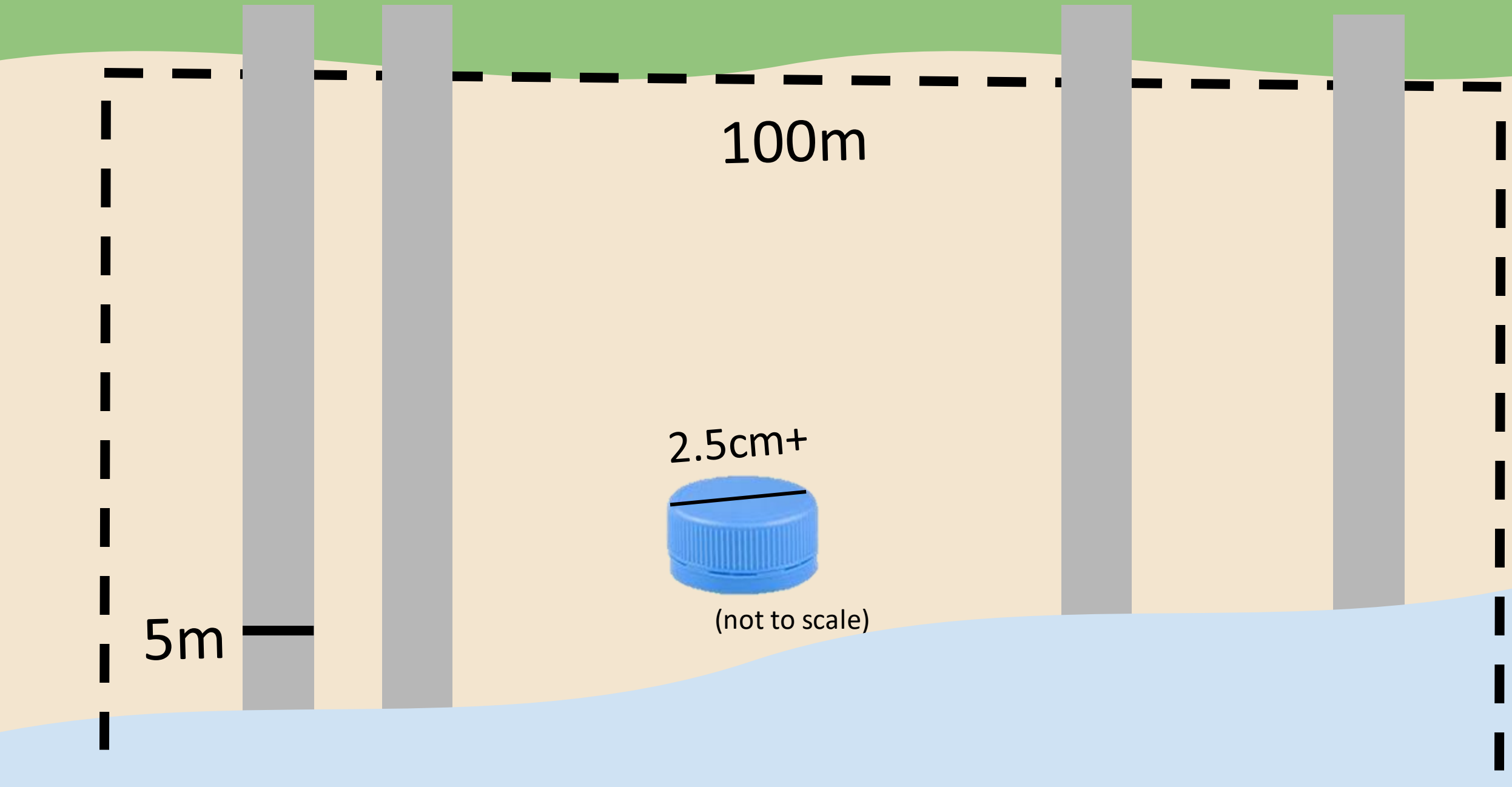
100m

Count & categorize by material & type

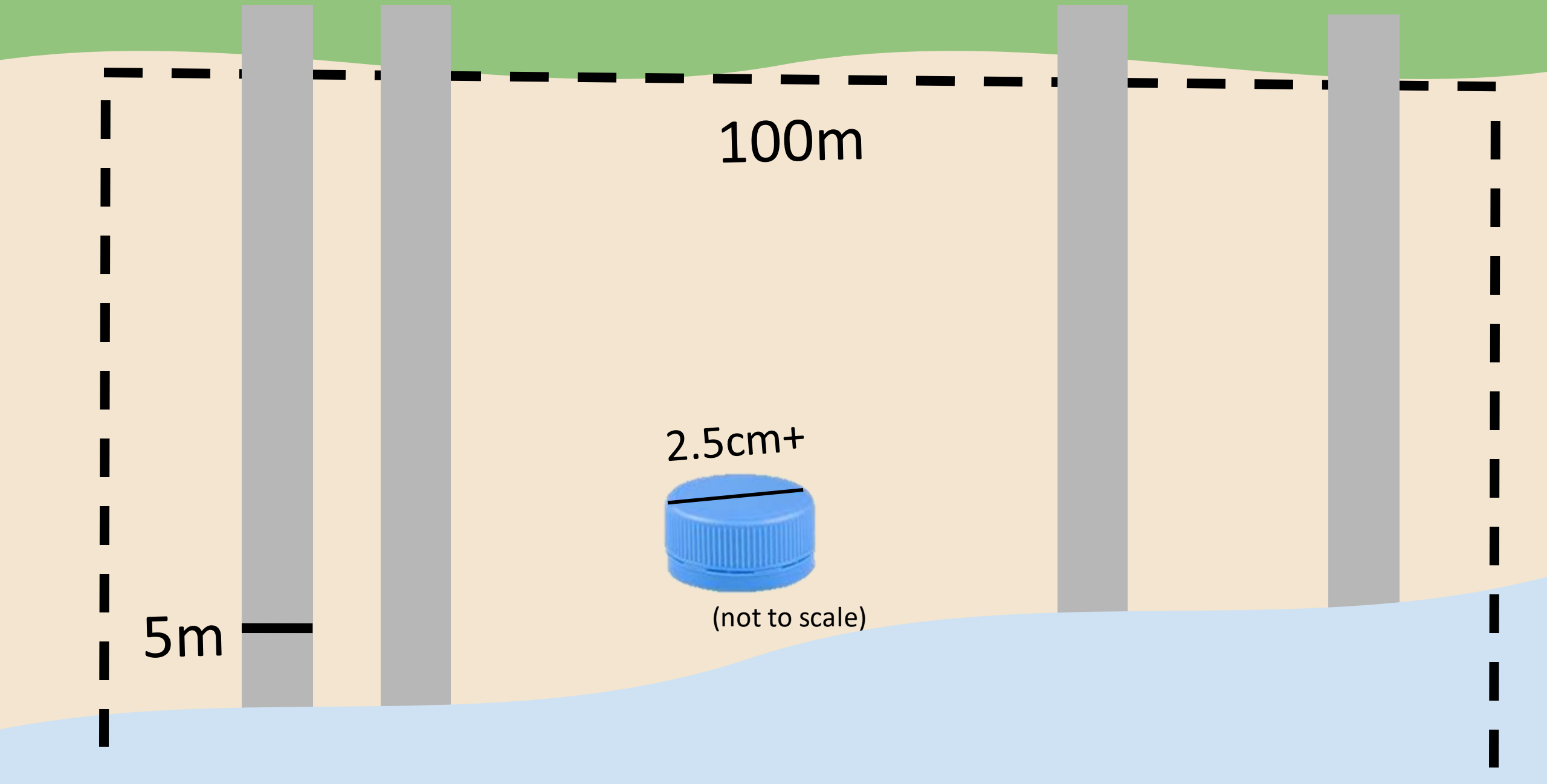
2.5cm +

(not to scale)

Standing stock (debris left in place)



MDMAP unified protocol (debris removed)




CIMRS


SURFRIDER
FOUNDATION


COASST


EBIIL SOCIETY, INC.


Sea Grant


NATIONAL MARINE
SANCTUARIES


Heal the Bay


PACIFIC
WHALE
FOUNDATION


Dauphin Island Sea Lab
Alabama


THE SCIENCE
EXCHANGE


U.S. COAST GUARD
AUXILIARY


HAWAI'I
WILDLIFE FUND


Virginia Coastal Zone
MANAGEMENT PROGRAM


Washington
conservation corps


CITY OF NEWPORT BEACH
CALIFORNIA


U.S.
FISH & WILDLIFE
SERVICE


NATIONAL
PARK
SERVICE


HAPPON


SAVE OUR
SHORES


BRITISH
COLUMBIA
Ministry of
Environment


REDFISH ROCKS
COMMUNITY TEAM


California Coastal
National Monument


MISSION • ARANSAS
NATIONAL
ESTUARINE
RESEARCH
RESERVE


Oregon Shores
Conservation Coalition


OREGON COAST
AQUARIUM
NEWPORT


BOY SCOUTS
OF AMERICA


HUMBOLDT
STATE UNIVERSITY

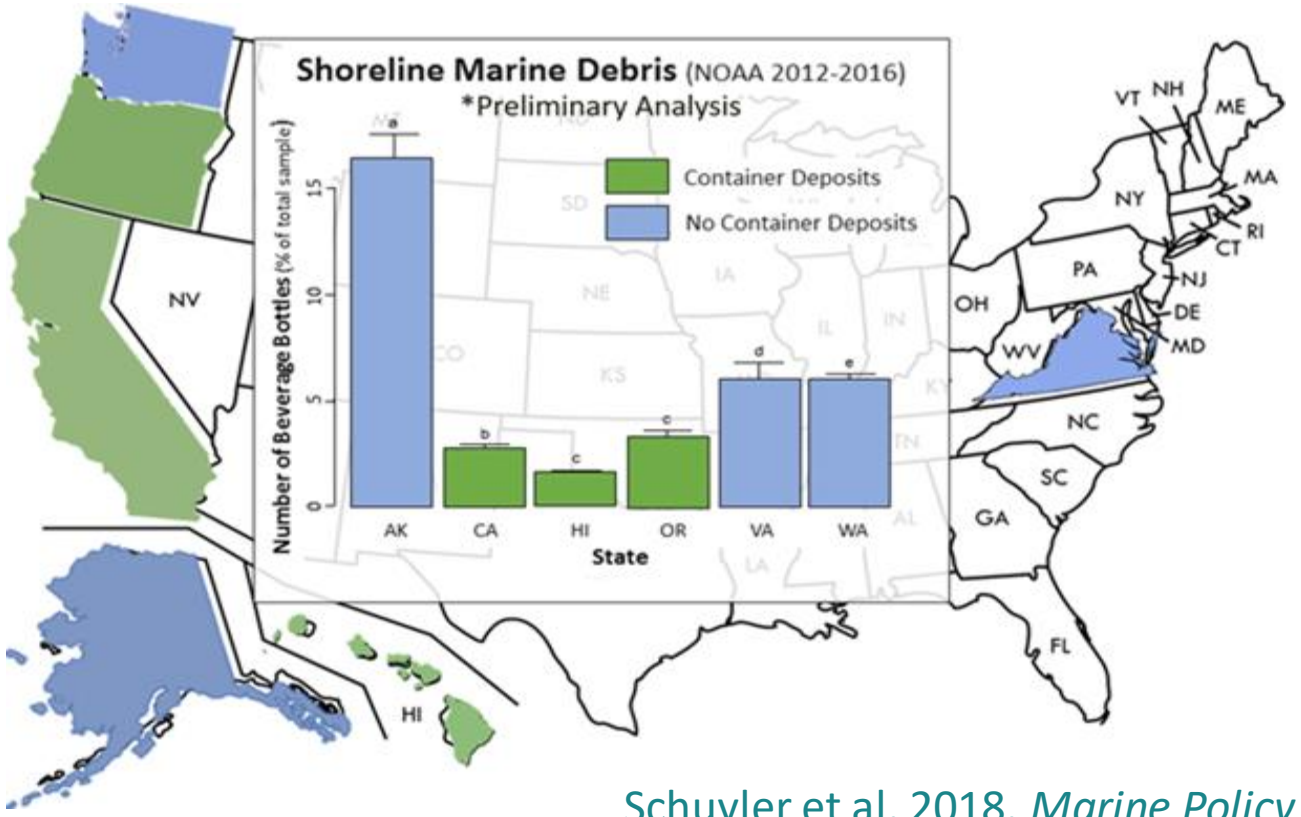

Pūlama Lānaʻi

Outcomes

Local

Kate Brimrose

National



Schuyler et al. 2018, *Marine Policy*

Ocean Conservancy's International Coastal Cleanup

Sarah Kollar
Outreach Manager
Trash Free Seas Program
Ocean Conservancy
December 16th, 2020

Ocean Conservancy®

International COASTAL Cleanup

International COASTAL Cleanup

16 MILLION
volunteers

344 MILLION
pounds of trash

464,000
miles

35	155+	396
YEARS	COUNTRIES	MILLION ITEMS REMOVED

2014 ICC Kuwait,
Kuwait Dive Team

2017 ICC, Washington DC

2016 ICC Jamaica, JET

Citizen Science Data Collection: Paper Cards & Clean Swell

VOLUNTEER
OCEAN TRASH DATA FORM

Ocean Conservancy

Ocean and waterway trash ranks as one of the most serious pollution problems choking our planet. Far more than an eyesore, a rising tide of marine debris threatens human health, wildlife, communities and economies around the world. The ocean faces many challenges, but trash should not be one of them. Ocean trash is entirely preventable, and data you collect are part of the solution. The International Coastal Cleanup is the world's largest volunteer effort on behalf of ocean and waterway health.

HERE IS HOW IT WORKS:

1 CLEAN UP TRASH & COLLECT DATA

2 ORGANIZE & ANALYZE DATA

3 PUBLISH RE

4

SITE INFORMATION:

Cleanup Site Name:

State or Province:

Zone or County:

Country:

Nearest Crossroad or Landmark:

MOST UNUSUAL ITEM COLLECTED:

TYPE OF CLEANUP:

Land: ☐ Underwater: ☐ Watercraft: ☐

GO PAPERLESS!

Collect and record your data on **Clean Swell!**

Download the free app on your mobile device.

App Store | Google Play

Please return this form to your area coordinator.
If you are unable to do so, please mail or email it to:

Ocean Conservancy
Attn: International Coastal Cleanup
1300 19th Street, NW, 8th Floor, Washington, DC 20036
cleanup@oceanconservancy.org

Trash Free Seas: www.oceanconservancy.org/cleanup
Be a Green Boater: www.oceanconservancy.org/do-your-part/green-b
Sponsors: www.oceanconservancy.org/cleanupsponsors
Clean Swell: www.oceanconservancy.org/cleanswell

TRASH COLLECTED

Citizen scientist: Pick up all trash and record all items you find below. No matter how small the items, the data you collect are important for Trash Free Seas.®

EXAMPLE: Plastic Bags: 𝍸 III = 8 (TOTAL #)

Please DO NOT use words or check marks. Only **numbers** are useful data.

MOST LIKELY TO FIND ITEMS: (TOTAL #)

- Cigarette Butts: =
- Food Wrappers (candy, chips, etc.): =
- Take Out/Away Containers (Plastic): =
- Take Out/Away Containers (Foam): =
- Beverage Bottles (Plastic): =
- Beverage Bottles (Glass): =
- Beverage Cans: =
- Grocery Bags (Plastic): =
- Other Plastic Bags: =
- Paper Bags: =
- Cups & Plates (Paper): =
- Cups & Plates (Plastic): =
- Cups & Plates (Foam): =

PACKAGING MATERIALS: (TOTAL #)

- 6-Pack Holders =
- Other Plastic/Foam Packaging: =
- Other Plastic Bottles (oil, bleach, etc.): =
- Strapping Bands: =
- Tobacco Packaging/Wrap: =

PERSONAL HYGIENE: (TOTAL #)

- Condoms: =
- Diapers: =
- Syringes: =
- Tampons/Tampon Applicators: =

(TOTAL #) =

2.5cm (actual size)

STATUS	ENTANGLED	TYPE OF ENTANGLEMENT ITEM
Dead or Injured	Yes or No	

2. 3.

Weight of Trash Collected: lbs/kgs Distance Cleaned: miles/km

Yes! It can be used year-round.
Yes! It can be used without Wi-Fi or cellular service

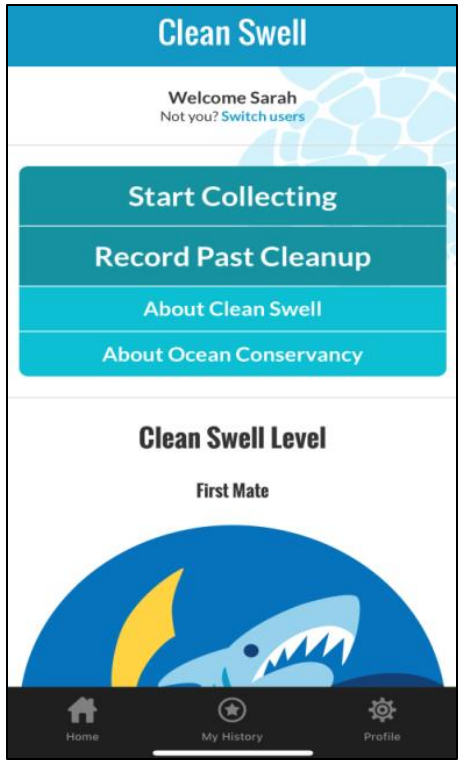
Ocean Conservancy

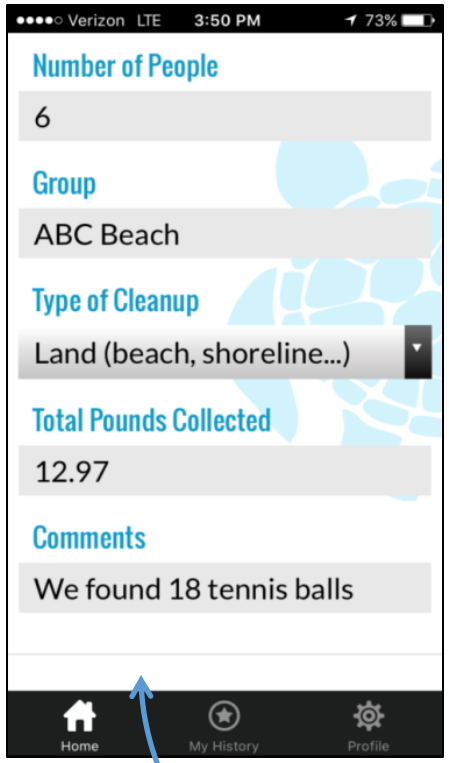
Volunteers download & create an account

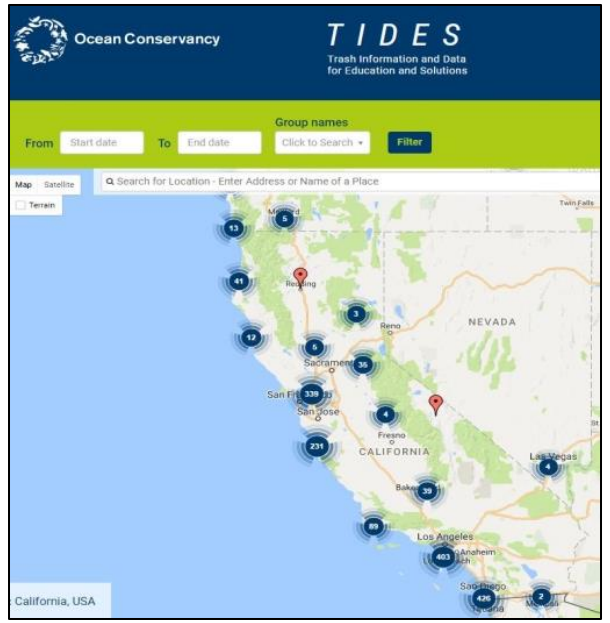
At cleanup, volunteers enter GROUP NAME for ID (optional)

Volunteers submit data (including item counts, weight, group size) via the app

Data immediately enter database. User receives cleanup summary







www.CoastalCleanupData.org

The app uses the device's internal GPS to log location (lat./long. of start point) and tracks distance covered ** only if user allows location services to be turned on for the app. Most users do.

Ocean Conservancy

Ocean Conservancy

TIDES

Trash Information and Data for Education and Solutions

Our Progress So Far...

1,137,986 people have participated

22,763 locations around the world

36,061,905 lbs of trash removed

40,466 miles covered

Join the Cleanup

View Reports

Download Clean Swell

Enter Data

COORDINATOR
OCEAN TRASH DATA FORM

Ocean Conservancy

DEAR CLEANUP COORDINATOR:
Thank you for your hard work, dedication and valuable time spent for this important cause! We appreciate your commitment and passion for trash free seas.

Before you complete this form, compile all data from the Volunteer Ocean Trash Data Form. For each item of trash, add the total number of pieces and enter this number in the "Total" box on the back of this data form. Numbers are the only valid form of data, so please DO NOT use words or check marks in the boxes next to ocean trash items.

NAME: EMAIL:

CLEANUP SITE DESCRIPTION

Type of Environment (choose one):
- Saltwater (Ocean/Bay/Estuary)
- Freshwater (River/Stream/Lake)
- Inland (No Water Body Present)

Mode of Data Collection (choose one):
- Land (beach, shoreline or inland)
- Underwater
- Watercraft (powerboat, sailboat, kayak or canoe)

CLEANUP SITE LOCATION

Cleanup Site Name (beach, park, etc.):
State or Province: Zone or County:
Country: Nearest Crossroad/Landmark

CLEANUP SUMMARY

Month: Day: Year: Total Number of Volunteers at this site: Adults: Children:
Total Weight of Trash Collected: lbs. or kgs. Total Number of Trash Bags Filled:
Estimated Distance Cleaned: ¼ ½ ¾ 1 2 3 4 5 (circle one) Other:
Distance Measured In: Miles or Kilometers (circle one)

MOST UNUSUAL ITEM(S) COLLECTED:

1. 2. 3.

Please return this form along with all Data Forms to your State/Country Coordinator.

State/Country Coordinators: Please submit Summary Data into the online Data Collection and Reporting Tool at www.coastalcleanupdata.org.

International COASTAL Cleanup

If you are unable to contact your State or Country Coordinator, please mail or email this form to:

Ocean Conservancy
Attn: International Coastal Cleanup
1300 19th Street, NW, 8th Floor
Washington, DC 20036

cleanup@oceanconservancy.org
www.oceanconservancy.org/cleanup

Site Information:

- Date Site Name
- State/Province
- Zone/County
- Country
- Nearest Crossroad or Landmark
- Type of Cleanup (on land, underwater or by boat)
- Total volunteers
- Total weight collect
- Total distance covered

Data characterization/Item counts on the flip side

Space to add additional metrics, such as width of shoreline, to help get us to area covered and ultimately, plastic pieces/km^2

Q&A

Please raise your hand or submit any question via the question box
and please indicate your **name** and **affiliation**

Part 2 - Report on a pilot exercise collecting data for 14.1.1.b


sustainable coastlines
Litter Intelligence.
Litter Intelligence
CITIZEN SCIENCE LITTER MONITORING PROGRAMME
WORKSHOP ON CITIZEN SCIENCE FOR SDG 14.1.1.B

Programme overview.

Citizen Science.

Litter monitoring programme engages communities to collect scientifically rigorous data and contribute to official reporting.

Education.

Holistic education programme engages schools with connection to nature, science inquiry & behavioural influencing skills.

Camden Howitt • camden@sustainablecoastlines.org • **litterintelligence.org**

sustainable coastlines | Litter Intelligence.

Government partners.

Ministry for the Environment
Manatū Mō Te Taiao

Three-year fund for programme design, development and rollout.

Environmental reporting.

Stats NZ
Tatauranga Aotearoa

Co-design of data quality assurance and controls.

Environmental reporting.

Department of Conservation
Te Papa Atawhai

Co-design of localised adapation to UNEP/IOC methodology.

Peer review changes/adaptations to methodology.

Camden Howitt • camden@sustainablecoastlines.org • **litterintelligence.org**

sustainable coastlines | Litter Intelligence.

Impacts to date.

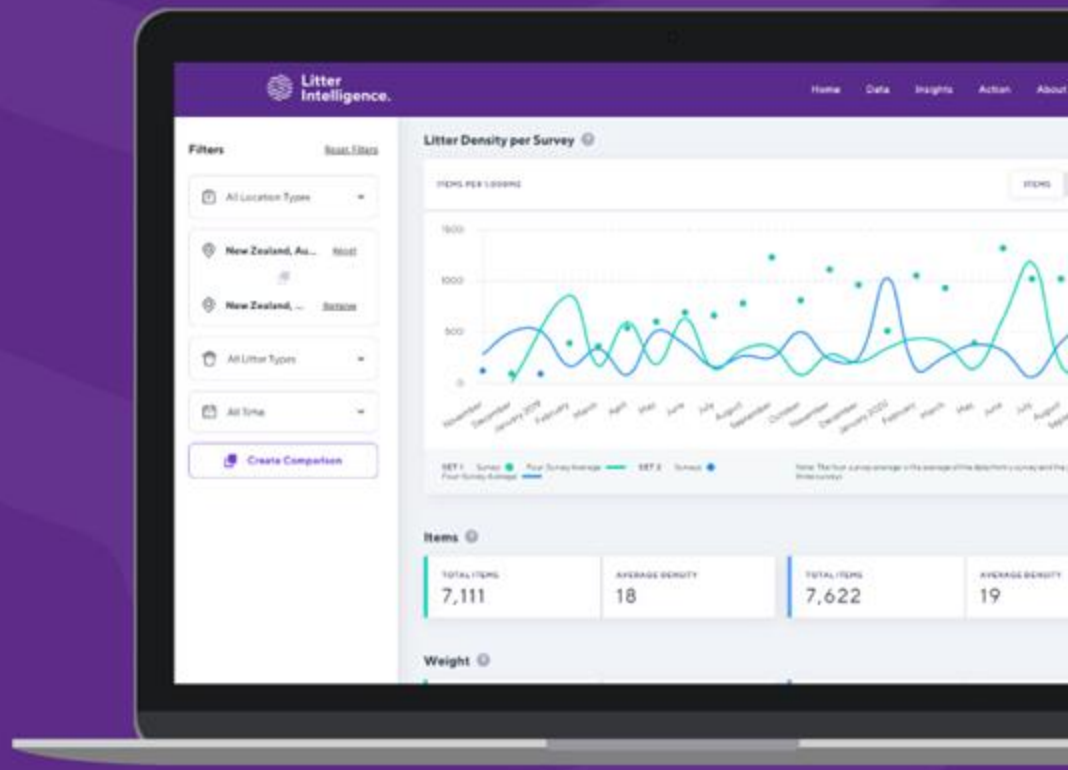
16 DECEMBER 2020 insights.litterintelligence.org

186
BEACHES MONITORED

7,930
VOLUNTEER HOURS

585
SURVEYS COMPLETED

21
SCHOOLS IN EDUCATION PROGRAMME



Camden Howitt • camden@sustainablecoastlines.org • **litterintelligence.org**

sustainable coastlines | Litter Intelligence.

Community action.

Opposition to proposed spat farm at Whauwhau Bay on the Kuastuns Peninsular. Presented on behalf of the Opito Bay Ratepayers Assoc.

Camden Howitt • camden@sustainablecoastlines.org • **litterintelligence.org**

sustainable coastlines | Litter Intelligence.

Government reporting & action.

Camden Howitt • camden@sustainablecoastlines.org • **litterintelligence.org**

sustainable coastlines | Litter Intelligence.

Challenges & next steps.

Covid.

Sustainable funding.

Cultural adaptation.

Cross-domain application.

Technology automation,
AI and source identification.

International rollout.

Beach.

Freshwater.

Stormwater.

Camden Howitt • camden@sustainablecoastlines.org • **litterintelligence.org**

sustainable coastlines

Litter Intelligence.

Pilot study on Monitoring and assessment of Marine Litter and Microplastics at the Kenyan Coast

Dr. Catherine Mbaisi

Ag. Deputy Director EEIPP

Introduction

- The National Environmnet Management Authority (Nema) in collaboration with UNEP and other partners are working together to
- Prepare a report on National Source inventory report which will include linkages with SDG 14.1.1 and data on the sources, pathways and accumulation of marine litter and micro plastics and the data from the national source inventory collated and made accessible to users.

Expected outcomes

- Enhanced understanding of the sources, pathways and state of marine litter plastics in Kenya, focus on Nairobi River, Athi River and the Kenyan Coast.
- Policy relevant information on marine plastics which can feed into legislation , national action planning and national communication and outreach
- Increased capacity of NEMA to compile and use data on sources , pathways and accumulation of marine litter and micro plastics

Achievements

- Inception workshop
- Regional training workshop
- In country training on measuring marine litter plastic done at the Coast

Inception workshop
2nd-5th July 2019, BOMA Hotel.

ToTs on Monitoring and assessment of Marine Litter and Microplastics 5-9 August 2019, Mombasa

Aim support the establishment of monitoring programmes to address the need for quality data and effective monitoring of land and sea based sources quantities, fate and impact of marine litter and strengthening the capacity of members, countries to use evidence based approaches to decision making in support of global initiatives including SDG 14.1.1

What was covered

- The training covered an introduction to Marine litter pollution, case studies by KEMFRI
- Introduction to Monitoring of the shoreline, Biota, and the different methods of and sampling strategies.
- Sea Surface monitoring methods
- Monitoring of the Seafloor
- Follow up activities by participants.

National Marine litter Data Collection training

- Ten (10) Day training exercise
- Aim : to build capacity in marine litter monitoring along the Kenyan coast while simultaneously collecting a strong baseline of data on Marine litter in Kenya's Coast regions

Partnerships

- Training held in collaboration with
- NEMA, UNEP, KMFRI, Western Indian Ocean Marine Science Association(WIOMSA)and the Nairobi Convention and the technical expertise of the commonwealth Scientific and Industrial Research Organization (CSIRO)
- The activity was also supported by the Global Partnership on Marine Litter(GPML) which is hosted within the global programme of action for the protection of the Marine Environment from Land based activities. (GPA)

Participants

Participants drawn from

- NEMA -officers from the coast Counties (Mombasa, Kwale,Tana River, Kilifi and Garisa
- NEMA HQ
- Kenya Marine and Fisheries Research Institute(KEMFRI)
- Kenya Wildlife Service (KWS)
- County Governments along the Kwale,Mombasa,Kilifi,Garisa,Tana River,Lamu and Nairobi

Structure of the training

- The training was based in Ndiani Beach, Kwale County. The first three days were spent in a classroom set up , studying and understanding the data collection methodology that would be used to collect the data during the exercise.
- Experts from CSRIRO lead the whole exercise.

- Day 4, the groups were divided into 4 smaller sub groups, to begin utilizing the data collection methods by sampling sites selected by CSIRO research method.
- The sites selected included beaches, rivers and inland areas from Kwale County to Kilifi County.
- The subgroups were further divided into smaller groups of 2-3 people to cover much area.

Sites Sampled

1. Kwale
2. Mombasa
3. Kilifi
4. Malindi

Each subgroup aimed to sample 4-6 sites per day

Equipments and preparations

- Coast is a hot region, so participants encouraged to wear appropriate attire and walking shoes
- The trainers provided all other equipments required during the study .

Results

- The results were analysed
- They were used to inform the baseline on marine litter work

GHANA COUNTRY PERSPECTIVE

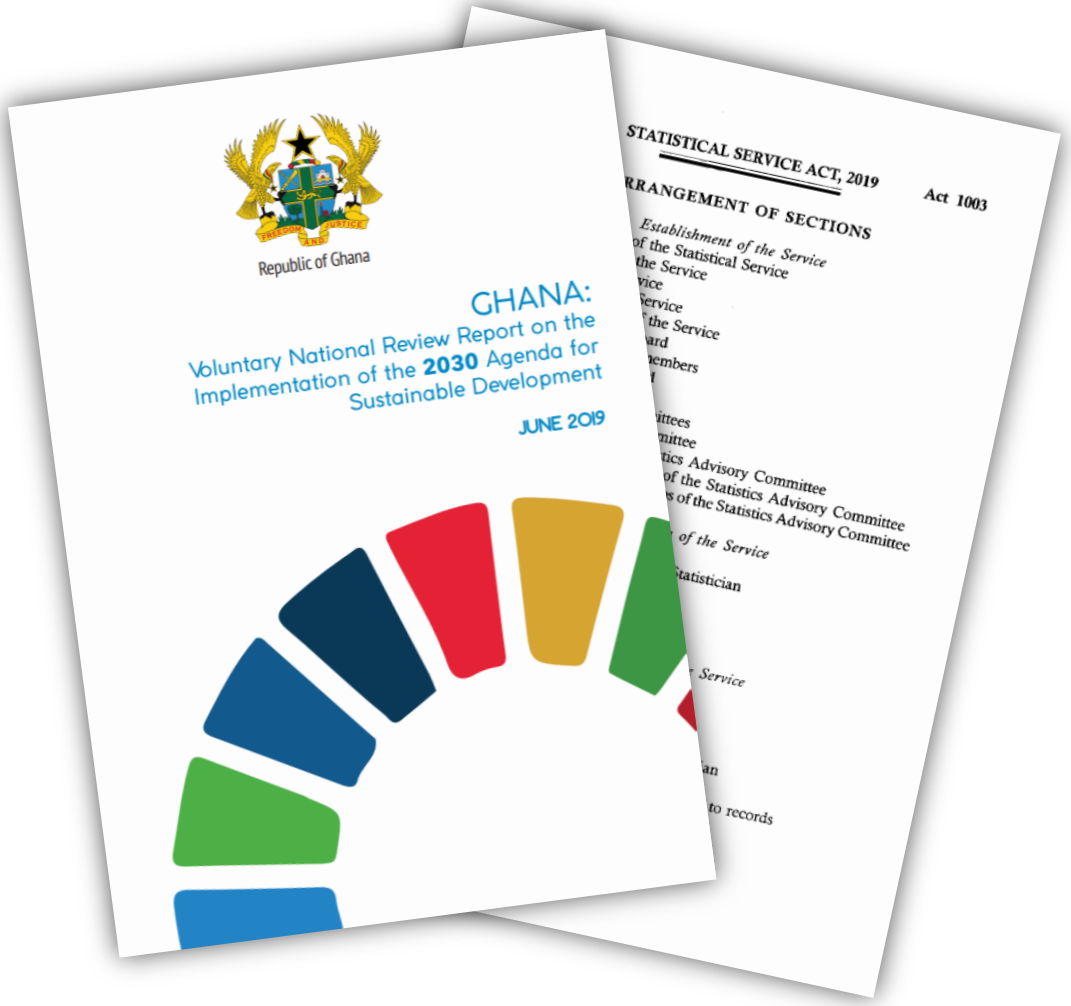
DEC 2020

Reporting on the SDGS

In Ghana's first VNR published in June 2019, only 3 indicators were reported from Goals 13, 14 and 15.

This 'business as usual' coverage of environmental goals concerns the Ghana Statistical Service (GSS). Other indicators are monitored but with insufficient frequency. To fill the data gap alternative methods are required to measure these SDGs.

In 2019, Act 1003 the Statistical Service Act was passed into law, incorporating the use of non-traditional data sources into GSS' mandate.



CS4SDGs

Motivated by the systematic review *Mapping Citizen Science methodologies to SDGS (Fraisl et al., 2020);* GSS partnered with IIASA - TReNDS and UNEP on the Citizen Science for SDGs (CS4SDGs) pilot. Three priority indicators were identified.

Aim to produce **step by step guidelines** as a scientific paper to demonstrate how other NSOs and data communities can replicate the approach.

APPROACHES

	SDG Indicator	Using multiple Data sources?	Method
1	14.1.1b Plastic Debris Density	✗	• Establish national marine litter priorities and feed results into MESTI's Ocean Plan • Utilise existing beach clean-up network for data collection on marine litter • Continue with existing Ocean Conservancy ICC methodology or align as needed
2	15.4.2 Mountain Green Cover Index	✓	• Mobilise local networks to verify Collect Earth's satellite deforestation analysis • Take in-situ photos/collect data using data sheets as ground truth.
3	6.6.1 Change in extent of water-related ecosystems over time	✓	• Compliment ARDC data on wetlands with in-situ data collection on ecosystem health • Verification as part of the Mountain Green Cover Index *wetlands class* as described for 15.4.2

MARINE LITTER LANDSCAPE

Ghana's ocean faces excessive pollution of the beaches and dumping of waste.

In line with UNCLOS 1982, Ghana passed six main Laws and Acts to regulate marine activities.

Ghana was first African nation to join **Global Plastic Action Partnership** in Oct 2019, with the President pledging to achieve zero leakage of plastic waste into oceans and waterways.

A growing beach-clean up community is active along Ghana's coast. Between 2015 - 2018, there were 25 cleanups with 7461 volunteers [TIDES].

IMAGE BY PLASTIC PUNCH NGO

PARTNERSHIPS

By harnessing existing networks and incorporating them into the data ecosystem, data collection can become efficient and locally-owned

Political Will

Plastic pollution is a priority of the presidency since joining the Plastic Action Partnership last year.

The Statistical Service Act 2019 (Act 1003) mandates use of **non-traditional data sources** in the production of official statistics.

In exploring the National priorities for measuring 14.1.1b, a **Policy Roundtable** brought together Ministries, Academics and CSOs who agreed to explore Citizen Science methodologies and incorporate results into their **Oceans Plan.**

Mobilising Networks

For over a decade beach clean ups have been happening on a large scale across Ghana's coast by leading NGO *Smart Nature Freaks* (SNFYVF). Since 2016, they have used the **ICC Ocean Conservancy** methodology to collect volume and type of waste collected on beach cleanups.

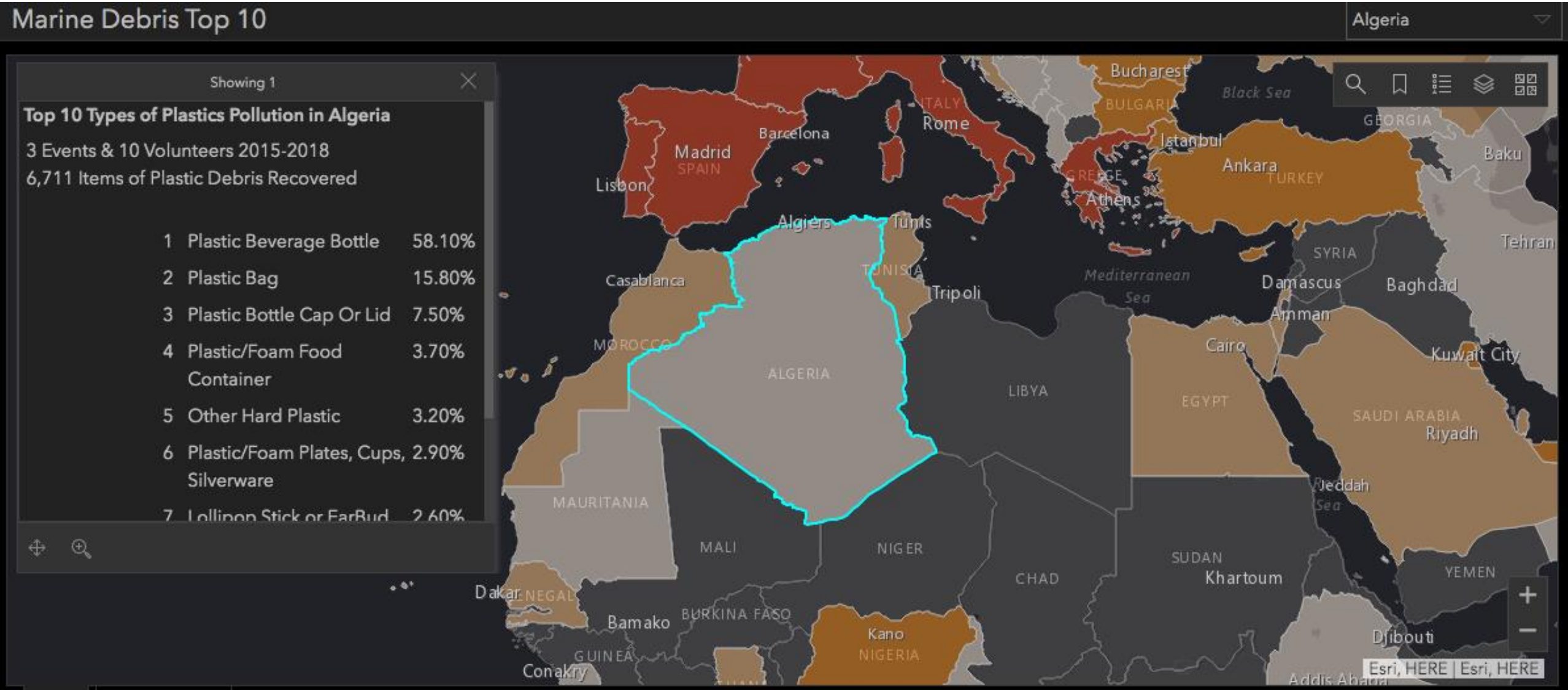
Plastic Punch, another NGO, customized their own data collection tool to nationalize the taxonomy of items collected.

INTERNATIONAL COASTAL CLEANUP

- In Ghana, ICC uses data cards and apps (Clean Swell) to track marine litter, with an emphasis on plastics, single use plastic debris items.
- The data recorded includes the location, the number of participants, the weight or an estimate of weight of the debris collected and the distance covered.
- When the SNFYVF do cleanups, they make sure that they identify each item found, record and count them.
- Results reported on an online global database, TIDES

Ocean Conservancy®

EC2020 VISUALISATION



WAY FORWARD

Ghana wants to capatalise on existing beach clean-up activities for the computation of **14.1.1b level 2: Beach litter.** There is political will, networks ready to be activated and an existing Citizen Science methodology in use.

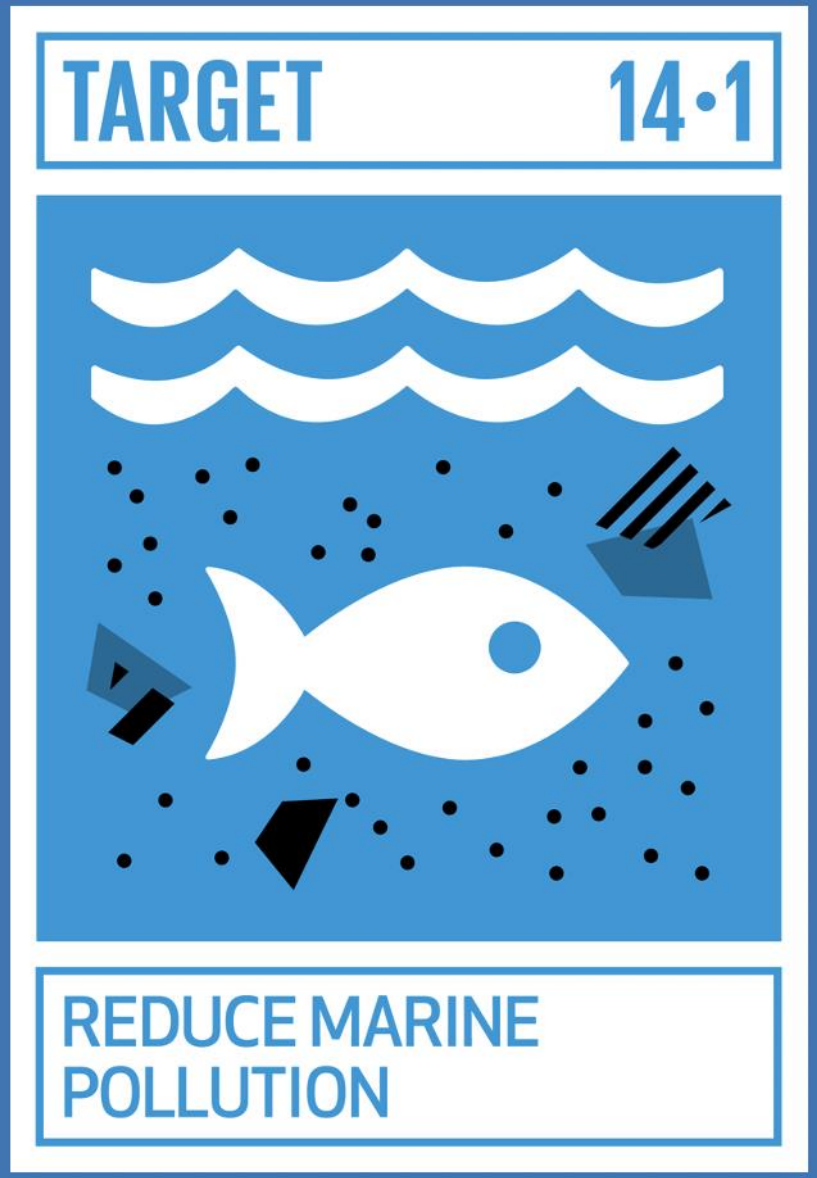
THANK YOU

Rachel.bowers@statsghana.gov.gh

https://statsghana.gov.gh/

Citizen Science data & Indicator 14.1.1b

SDG and Environment Statistics
Unit - UNEP



Methodology – Level 2

- ***Level II: Beach litter***
- ***(average count of plastic items per km2)***

- Three Citizen science datasets were downloaded*
  - Marine Litter Watch
  - NOAA MDMAP Accumulation Survey
  - Ocean Conservancy TIDES Report

* https://cscloud-ec2020.opendata.arcgis.com/datasets/data-earth-challenge-integrated-data-plastic-pollution-mlw-mdmap-tides-/data?geometry=158.451%2C-68.714%2C-153.737%2C81.701

Data Findins NOAA MDMAP Accumulation Survey

- Data found for the following countries:
- United States (2015-2018)

COUNTRY	Year	TotalArea_Sq_m
United States	2015	12,493,887.24
United States	2016	4,976,048.79
United States	2017	3,283,590.79
United States	2018	20,905,821.87

Data Findins Ocean Conservancy TIDES Report

- The width of the cleaned area is missing

- Data found for the following countries:
  - Australia (2016-218)
  - Canada (2016-2018)
  - China (2016-2018)
  - Malaysia (2018)
  - United States (2015-2018)

COUNTRY	Year	TotalArea_Sq_m
Australia	2016	1,222,984.53
Australia	2017	302,931.26
Australia	2018	237,576.37
Canada	2016	1,566,697.78
Canada	2017	1,444,761.58
Canada	2018	3,641,884.24
China	2016	2,122,147.03
China	2017	1,666,360.30
China	2018	2,280,734.51
Malaysia	2018	5,785,164.72
United States	2015	6,658,310.84
United States	2016	14,269,725.09
United States	2017	23,048,202.18
United States	2018	26,582,878.09

Conclusion & recommendations

- Cleanups are repetitive in the same locations, we need to enhance the geographical distribution of the cleanups
- Align the Cleanup methodology with the GESAMP guidelines for the monitoring and assessment of plastic litter in the ocean
- Include the Width of the cleaned area to calculate the area in square meters before converting it to Square KM.
- Increase the density of the cleanups
- Disaggregate the cleanup event types (e.g., Land (beach, shoreline and inland) Cleanup)
- Aggregate cleanups from different CS projects to increase area coverage

Thank you !

UN environment

UN Environment Programme

www.unep.org

Q&A

Please raise your hand or submit any question via the question box
and please indicate your **name** and **affiliation**

Next Steps

Thank you

UN environment programme

unep-gpmarinelitter@un.org

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org