

SWAP Marine Litter Training - Samoa

**Activity report Sustainable coastlines
– June 2023**



Sustainable, transformative and resilient for a Blue Pacific

SWAP MARINE LITTER TRAINING – SAMOA



ACTIVITY REPORT SUSTAINABLE COASTLINES JUNE 2023



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I. Introduction

Since 2018, Sustainable Coastlines has been delivering a long-term citizen science programme in New Zealand to collect open-access scientific data on marine litter and use it to turn insights into action. The Litter Intelligence Programme, New Zealand's first national litter database, was designed in close collaboration with Statistics New Zealand (StatsNZ) and the Department of Conservation (Doc) to help build a better understanding of the litter problem - because ultimately, we cannot understand what we do not measure.

As part of the “Committing to Sustainable Waste Actions in the Pacific (SWAP)” project, that aims to improve sanitation, environmental, social, and economic conditions in Pacific Island countries and territories through proper waste management, Sustainable Coastlines and its Litter Intelligence Programme is delivering a Pilot Marine Litter Project in five Pacific Island countries: Fiji, Samoa, Solomon Islands, Tonga, and Vanuatu with the objective to strengthen communities and local authorities' capacity around Marine Litter. In particular, to deliver training and workshops to monitor the evolution of Marine Litter pollution and produce awareness materials to inform and educate on the issue of Marine Litter.

Sustainable Coastlines is providing in person training for communities and associations involved in the implementation of the SWAP Marine Litter Pilot Projects, to enable them to conduct statistically sound beach litter surveys and audits during clean-up activities, and to enable them to record this data using the Litter Intelligence online application for Marine Litter data sharing. The training is being delivered through workshops that provide training on methodology and the use of the online data collection application for recording beach litter data. Additionally, Sustainable Coastlines is working on producing awareness and training materials to inform and educate associations and communities on the issue of Marine Litter involved in the SWAP Marine Litter Pilot Project in Fiji, Samoa, Solomon Islands, Tonga and Vanuatu.

This is the fourth report about the delivery work done in the field as part of the SWAP Marine Litter Pilot Project. In Upolu, Samoa Sustainable Coastlines delivered 3 in person workshops with litter survey and audit activities. The report outlines the activities and community groups in Upolu that took part in the training workshops and the beach litter surveys and data collected. This report includes the training material delivered, and photos of the field work.



II. Site visit and survey area selection

Sustainable Coastlines (Ben Knight and Briar Inwood) visited the selected locations (Vailuutai, Lalomanu) prior to the surveys to assess the area, select the location for the transects, and to undertake a risk assessment.

2.1. Vailuutai Agenda

SITE SCOUTING Friday 23rd June <u>Location:</u> Vailuutai / Upolu / Samoa		
Time (Samoa time)	Topic	Resource Person
2:00pm – 2:30pm	Picked up from airport and travel to Vailuutai	Mr Ben Knight and Miss Briar Inwood Sustainable Coastlines
2:30pm - 3:00pm	Scout site and determine location for survey area	Mr Ben Knight and Miss Briar Inwood Sustainable Coastlines
3:00pm - 3:00pm	Depart Vailuutai and travel to Apia	Mr Ben Knight and Miss Briar Inwood Sustainable Coastlines

2.2. Lalomanu Agenda

SITE SCOUTING Saturday 24th June <u>Location:</u> Lalomanu Community / Lalomanu Beach, Upolu / Samoa		
Time (Samoa time)	Topic	Resource Person
8:30am – 9:45am	Picked up from Le Manumea and travel to Lalomanu	Mr Darren Bartley and Mr Fualaga Pemita - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
9:45am - 10:30am	Scout site and determine location for survey area	Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines

III. Training Day 1 – LI Citizen science workshop - Lalomanu Beach, Upolu, Samoa

3.1. Agenda

MARINE LITTER TRAINING Monday 26th June <u>Location:</u> Lalomanu Community / Lalomanu Beach, Upolu / Samoa		
Time (Samoa time)	Topic	Resource Person
5:30am – 7:00am	Meet at Hotel Millenia in Apia and travel to Lalomanu Alepiata	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo and Mr Darren Bartley -MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
7:00am - 8:00am	Arrive at Lalomanu and set up venue/projector etc	Mr Darren Bartley and Mr Fualaga Pemita - MNRE
8:00am – 9:00am	Theory Presentation (Intros, SWAP short video, LI intro, how to survey, H & S) + morning tea	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo, Mrs Faatamalii Meredith - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
9:00am - 11:00am	Travel to beach site to conduct the litter survey / clean up	Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
11:00am - 12:30pm	Return to venue and begin litter audit	Ben Knight and Miss Briar Inwood - Sustainable Coastlines
12:30 pm - 1:30pm	Lunch	All participants
1:30pm - 2:30pm	Submit data, review data on the website (if interest is available), next steps and celebration	Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines

2:30pm - 4:00pm	Prepare to return to Apia and transport all the waste from the audit to dispose at Tafaigata landfill	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo, Mrs Faatamalii Meredith, Mr Darren Bartley and Mr Fualaga Pemitā - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
4:00pm	Arrive in Apia	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo and Mr Darren Bartley - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines

3.2. Attendees

A total of 22 participants attended the Marine Litter Training delivered at Lalomanu on 26th June 2023 and the launch of the Samoa Marine Litter Pilot Project developed under the Committing to Sustainable Waste Actions in the Pacific (SWAP) Project. The registration form of attendees from the community is shown in appendix 1.

The workshop was delivered by Sustainable Coastlines (Ben Knight and Briar Inwood). Attendee groups were Lalomanu Women's Committee, local community members, Ministry of Natural Resources and Environment (MNRE) and the Secretariat for the Pacific Regional Environment Programme (SPREP) as detailed in [appendix 1](#).



Lalomanu Litter Intelligence training day 1 and Samoa Pilot Launch

3.3. Activities

The marine litter training with the Lalomanu Women’s Committee on how to conduct a marine litter survey and audit. The activities conducted during this day were:

- 1) Presentation of the Marine Litter Problem;
- 2) Introduction to the training. The PPT Presentation used for this introduction is attached to this report in Appendix 2;
- 3) Analysis of the beach selected for the Marine Litter Pilot Project;
- 4) Setting up of the litter audit and survey area;
- 5) Picking up of litter from the survey area;
- 6) Litter audit.

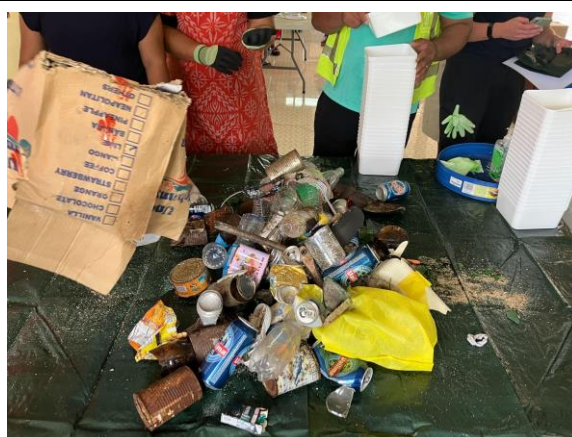
These activities are illustrated below:

Presentation on the Marine Litter Problem	Analysis of the beach selected for the Marine Litter Pilot Project
	
Setting up of the litter audit and survey area	
	

Picking up of litter from the survey area



Litter audit



3.4 Results Litter Survey at Lalomanu, Upolu, Samoa

Litter survey data can be accessed through the following link:

<https://litterintelligence.org/data/survey?id=2517>

- Survey Area: 100m x 20m surveyed.
- Rubbish Volume collected: 100 Litres.
- Rubbish Weight collected: 10.431 Kilograms.
- Litter density of the site: 216 Items per 1,000m².

The screenshot displays the Litter Intelligence website interface. At the top, a purple navigation bar contains the Litter Intelligence logo and links for Home, Data, Insights, Action, Education, and About, along with a LOGIN button. The main content area has a dark background with the word 'Data.' in large white text. To the right, a text block explains that the dataset was collected by Citizen Scientists at an official 'Survey Area' and is freely accessible. Below this, a 'Litter Survey' section features a map of the survey area at Lalomanu Beach, Samoa, with labels for 'Main South Coast Rd' and 'Main South Coast Rd'. To the right of the map, a table provides an overview of the survey details.

Overview	
Visual Assessment Grade	B
Citizen Scientists	22
Survey Hours	5.9
Audit Hours	12.0
Survey Area	100m x 20m
Surface	Sand
Litter density Items per 1,000m ²	216

IV. Training Day 2 – Litter Intelligence Citizen science workshop - Vailuutai, Upolu, Samoa

4.1. Agenda

MARINE LITTER TRAINING Tuesday 27th June Location: Vailuutai / Upolu / Samoa		
Time (Samoa time)	Topic	Resource Person
6:30am- 7:00am	Meet at Hotel Millenia in Apia and travel to Vailuutai	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo and Mr Darren Bartley - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
7:30am - 8:00am	Arrive at Vailuutai and set up venue/projector etc	Mr Darren Bartley and Mr Fualaga Pemitā - MNRE
8:00am-9:00am	Theory Presentation (Intros, SWAP short video, LI intro, how to survey, H & S) + morning tea	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo, Mrs Faatamalii Meredith - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
9:00am - 11:00am	Travel to beach site to conduct the litter survey / clean up	Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
11:00am - 12:30pm	Return to venue and begin litter audit	Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
12:30pm - 1:30pm	Lunch	All participants
1:30 pm - 2:30pm	Submit data, review data on the website (if interest is available), next steps and celebration	Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
2:30pm - 3:30pm	Prepare to return to Apia and transport all the waste from the audit to dispose at Tafaigata landfill	Mrs Julie Pillet - SPREP, SWAP Project Coordinator



		Mr Setoa Apo, Mrs Faatamalii Meredith, Mr Darren Bartley and Mr Fualaga Pemitā - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines
4:00pm	Arrive in Apia	Mrs Julie Pillet - SPREP, SWAP Project Coordinator Mr Setoa Apo and Mr Darren Bartley - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines

4.2. Attendees

A total of 21 participants attended the Marine Litter Training delivered at Vailuutai, Upolu, Samoa on 27th June 2023. The registration form of attendees from the group is shown in appendix 1.

The workshop was delivered by Sustainable Coastlines (Ben Knight and Briar Inwood). Attendee groups were EFKS Vailuuta & Faleatiu Youth, local community members, Ministry of Natural Resources and Environment (MNRE) and the Secretariat for the Pacific Regional Environment Programme (SPREP) as detailed in appendix 1.



Vailuuti, Upolu - Training day 2 with community, Ministry of Natural Resources and Environment (MNRE) and the Secretariat for the Pacific Regional Environment Programme (SPREP)

4.3. Activities

The marine litter training at Vailuutia on how to conduct a marine litter survey and audit. The activities conducted during this day were:

- 1) Presentation of the Marine Litter Problem;
- 2) Introduction to the training. The PPT Presentation used for this introduction is attached to this report in Appendix 2;
- 3) Analysis of the beach selected for the Marine Litter Pilot Project;
- 4) Setting up of the litter audit and survey area;
- 5) Picking up of litter from the survey area;
- 6) Litter audit.

These activities are illustrated below:

Presentation on the Marine Litter Problem	Analysis of the beach selected for the Marine Litter Pilot Project
	
Setting up of the litter audit and survey area	
	

Picking up of litter from the survey area



Litter audit



4.4. Results Litter Survey in Vailuutai, Upolu, Samoa

Litter survey data can be accessed through the following link:

<https://litterintelligence.org/data/survey?id=2519>

- Survey Area: 50m x 8m surveyed.
- Rubbish Volume collected: 90 Litres.
- Rubbish Weight collected: 34.713 Kilograms.
- Litter density of the site: 342 Items per 1,000m².

The screenshot displays the Litter Intelligence website interface. The top navigation bar includes links for Home, Data, Insights, Action, Education, and About, along with a LOGIN button. The main header area features the Litter Intelligence logo and a brief description of the dataset: 'This dataset was collected by Citizen Scientists at an official 'Survey Area' as part of the Litter Intelligence long-term litter monitoring programme. The data are freely and openly accessible to anyone. Download the raw data, share this survey, and learn more about the data collection methodology through the links at the bottom of the page.'

The 'Data.' section is highlighted, leading to a 'Litter Survey' page. This page provides details about the survey area (Samoa - Upolu- Vailuutai), monitoring group (Vailuutai Youth Group), survey date (27 June 2023), and lead citizen scientist (Kimeama Falefia). A map shows the survey area with 'START' and 'END' points marked. An 'Overview' sidebar on the right lists key metrics:

Metric	Value
Visual Assessment Grade	B
Citizen Scientists	19
Survey Hours	6.3
Audit Hours	8.5
Survey Area	50m x 8m
Surface	Sand
Litter density (Items per 1,000m ²)	342

V. Training Day 3 – Litter Intelligence Citizen science workshop - Sheraton Waterfront (Apia), Upolu, Samoa

5.1. Agenda

MARINE LITTER TRAINING Friday 30th June 2023 Location: Sheraton Waterfront (Apia) / Upolu / Samoa		
Time (Samoa Time)	Topic	Resource Person
9:00am	Meet at downtown Apia beach (across from Sheraton Hotel)	Mrs Julie Pillet - SPREP SWAP Project Coordinator Mrs Memoree Imo – SWAP, SPREP Mrs Renee Kamu – Islands, SPREP Mr Fualaga Pemitā - MNRE Mr. Ben Knight and Miss Briar Inwood - Sustainable Coastlines
9.00am - 9.30am	Safety briefing and set up or survey area.	Mrs Julie Pillet - SPREP SWAP Project Coordinator Mr. Ben Knight and Miss Briar Inwood - Sustainable Coastlines
9.30am - 10.30am	Conduct the litter survey / clean up	Mrs Julie Pillet - SPREP SWAP Project Coordinator Mr. Ben Knight and Miss Briar Inwood - Sustainable Coastlines
10.30am - 12.30pm	Travel to SPREP venue and begin litter audit	Mrs Julie Pillet – SPREP, SWAP Project Coordinator Mr. Ben Knight and Miss Briar Inwood - Sustainable Coastlines
12.30pm - 1.00pm	Submit data, review data on the website (if interest is available), next steps and celebration	Mrs Julie Pillet – SPREP, SWAP Project Coordinator Mr Fualaga Pemitā - MNRE Mr. Ben Knight and Miss Briar Inwood - Sustainable Coastlines
1.00pm - 1.30pm	Prepare to return to Apia and transport all the waste from the audit to dispose at Tafaigata landfill	Mrs Julie Pillet – SPREP, SWAP Project Coordinator Mr Fualaga Pemitā - MNRE Mr. Ben Knight and Miss Briar Inwood - Sustainable Coastlines

5.2. Attendees

A total of 7 participants attended the Marine Litter Training delivered at Sheraton Waterfront (Apia), Upolu, Samoa on 30th June 2023. The key contact details have been added to the registration form in [appendix 1](#).

The workshop was delivered by Sustainable Coastlines (Ben Knight and Briar Inwood). Attendee groups were the Ministry of Natural Resources and Environment (MNRE) and the Secretariat for the Pacific Regional Environment Programme (SPREP) as detailed in appendix 1.

5.3. Activities

The marine litter training day 3 on how to conduct a marine litter survey and audit. The activities conducted during this day were:

- 1) Analysis of the beach selected for the Marine Litter Pilot Project;
- 2) Setting up of the litter audit and survey area;
- 3) Picking up of litter from the survey area;
- 4) Litter audit.
- 5) App use training

These activities are illustrated below:



Setting up of the litter audit and survey area



Picking up of litter from the survey area



Litter audit



5.4. Results Litter Survey at Sheraton Waterfront (Apia), Upolu, Samoa

Litter survey data can be accessed through the following link:

<https://litterintelligence.org/data/survey?id=2527>

- Survey Area: 148m x 15m surveyed.
- Rubbish Volume collected: 70 Litres.
- Rubbish Weight collected: 12.86Kilograms.
- Litter density of the site: 579 Items per 1,000m².


Litter Intelligence.

[Home](#)
[Data](#)
[Insights](#)
[Action](#)
[Education](#)
[About ▾](#)

LOGIN

Data.

This dataset was collected by Citizen Scientists at an official 'Survey Area' as part of the Litter Intelligence long-term litter monitoring programme. The data are freely and openly accessible to anyone. Download the raw data, share this survey, and learn more about the data collection methodology through the links at the bottom of the page.

Litter Survey

Survey Area
Samoa - Upolu - Sheraton Waterfront

Survey Date
30 June 2023

Monitoring Group
Secretariat of the Pacific Regional Environment Programme (SPREP)

Lead Citizen Scientist
Julie Pillet


Beach.



Overview

OFFICIAL

✓

Visual Assessment Grade ?	B
Citizen Scientists	7
Survey Hours	6.0
Audit Hours	7.1
Survey Area	148m x 15m
Surface	Sand
Litter density Items per 1,000m ²	579

VI. De-briefing meeting

A de-briefing meeting was arranged online (video conference) on Tuesday the 25th July, 2023 from 2.30pm to 3.30pm, with Mrs Julie Pillet from SPREP, SWAP Project Coordinator, Mrs Memoree Imao, SPREP, SWAP Project, Mrs Faatamalii & Mr Fualaga Pemita, Ministry of Natural Resources and Environment (MNRE), and Mr. Ben Knight & Miss Briar Inwood from Sustainable Coastlines.

This meeting was to discuss: Highlights & successes (What worked?) and improvement opportunities (What held us back/didn't work?). A photo of the MIRO board used in the debriefing is available in appendix 3.

The main highlights and successes are:

- Really great engagement from the groups attending the workshops, and a diverse range of participation (from community members and government staff);
- Community groups are looking forward to the next survey;
- Site visits before workshops proved really valuable and helped us to plan the location of survey areas - aware of beach litter load;
- Catering was great and relatively low waste;
- The volunteers were fast learners and in regard to the survey setup and litter sorting / audit;
- Having MNRE staff to help translate during the workshops;
- Stayed on schedule despite arriving later than planned for the first workshop;
- Setting up CitSci logins prior to the workshop - gathering contact information.

The main improvement opportunities, and what held us back:

- Some language barriers - training delivered in English but not all participants could understand and were too shy to query any misunderstanding;
- Not all community members or participants had an email or phone number so weren't able to get everyone set up with a log in to the app, nor record their details via the salesforce registrations - instead recorded available info in a spreadsheet;
- Ongoing tech issues with the app - resulted in volunteers reentering data multiple times;
- Rushed pack out after the workshop - not all gloves were returned;
- Tide timings weren't ideal which meant early starts;
- The cleanup sacks weren't very durable and some had to be thrown away after a single use;
- Did not receive any formal feedback from volunteers;
- Funding issues - delayed planning for local government staff, trainings didn't go ahead in Savaii;
- Confusion around pick up times meant a late arrival at the first workshop.

Next steps:

- Trial paper feedback forms for Savaii trainings and during Tonga trip;
- Tam to run a second presentation before the next survey about why we are gathering the data;
- For Tonga - ensure Lana includes wider range of glove and vest sizes in the kit - Julie to check there is a mobile / tablet device in LI kit for Tonga trip.



Appendices

- Appendix 1: Registration Forms for all workshops
- Appendix 2: PPT Presentations
- Appendix 3: Debrief Miro Board



Appendix 1: Registration Form for all workshops

Workshop 1 - Lalomau				Notes
First Name	Family Name	Email	Phone number	22 participants total
Faatamalii	Meredith	faatamalii.meredith@mnre.gov.ws	7605924	MNRE Staff
Venus	Paplii	venus.papalii@mnre.gov.ws	7275556	MNRE Staff
Darren	Bartley	darren.bartley@mnre.gov.ws	7644070	MNRE Staff
Fualaga	Pemita	fualaga.permita@mnre.gov.ws	7646445	MNRE Staff
Maseiga	Faafeta Pete	maseiga95@gmail.com	7251391	
Konefesiuti	Ropati	konefesiuti@gmail.com	7783258	Helped with data entry
Laionesa	Tuese	tueselaionesa@gmail.com	7299717	
Workshop 2 - Vailuutai				21 participants total
First Name	Family Name	Email	Phone	
Faatamalii	Meredith	faatamalii.meredith@mnre.gov.ws	7605924	MNRE Staff
Venus	Paplii	venus.papalii@mnre.gov.ws	7275556	MNRE Staff
Darren	Bartley	darren.bartley@mnre.gov.ws	7644070	MNRE Staff
Fualaga	Pemita	fualaga.permita@mnre.gov.ws	7646445	MNRE Staff
Poinsettia	Mavaega	poinsettia@gmail.com	7269751	
Kimeama	Falefia	sakimeama@gmail.com :sakimeama@gmail.com	7789078	Cit Sci Lead - Helped with data entry
Beauty	Semi Pualilo	bspualilo@gmail.com	7730046	
Sipaia	Amerika	paulsipaia@gmail.com	7618501	
Workshop 3 - Apia Harbor SPREP				7 participants
First Name	Family Name	Email	Phone	
Fualaga	Pemita	fualaga.permita@mnre.gov.ws	7646445	MNRE Staff
Memoree	Imo	memoreei@sprep.org	7599323	
Renee	Kamu	reneek@sprep.org	7637476	
Hannah	Hendriks	hannah.ext@sprep.org		



Appendix 2: PPT Presentations

1. [Lead Citizen Scientist Training Workshop Slides 2023 SWAP pilot.pptx](#)
2. [LI intro presentation for SWAP Pilot 2023.pptx](#)





Litter
Intelligence.

Data. Insights. Action.

Citizen Scientist Training Workshop

OFFICIAL VERSION

2.0





**Litter
Intelligence.**
Data. Insights. Action.

Welcome & Introductions

Get to know everyone. Your name, organisation, and what motivates you to be here?



**Litter
Intelligence.**
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Programme Background

Get to know Sustainable Coastlines and the Litter Intelligence programme.

About Sustainable Coastlines



PURPOSE

REDUCING OCEAN LITTER
TOGETHER

IMPACT

60% LESS COASTAL
LITTER BY 2030

Approach

WE INSPIRE CHANGE IN
MINDSETS, BEHAVIOUR,
POLICIES AND PRACTICES,
THROUGH COMMUNITY
ENGAGEMENT & CITIZEN
SCIENCE



1.65 million
LITRES OF LITTER CLEANED UP

REFERENCE

Sustainable Coastlines > Our Impacts
sustainablecoastlines.org/about/our-impacts/



10th

MOST WASTEFUL COUNTRY

URBAN WASTE PRODUCTION PER CAPITA

REFERENCE

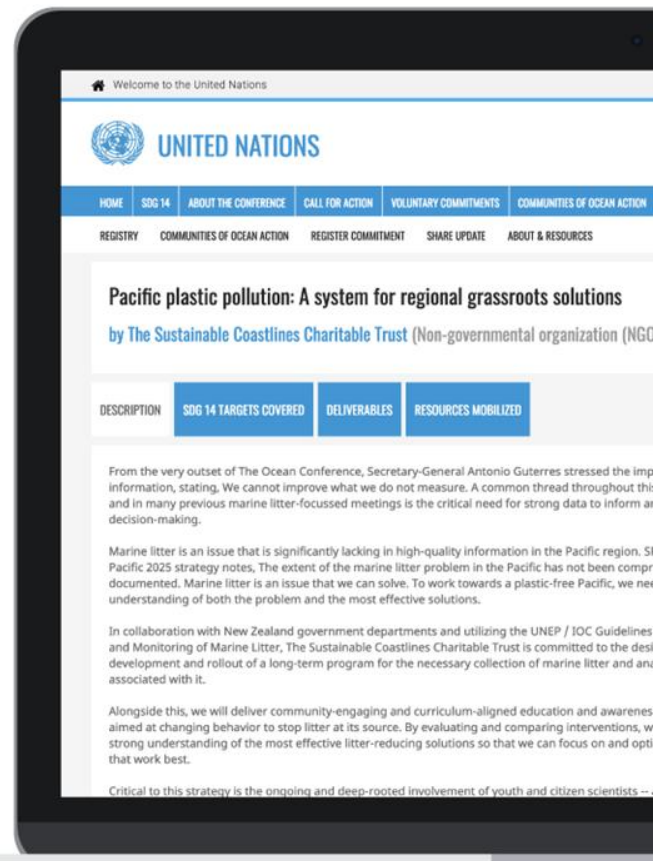
World Bank "What a Waste 2.0" Report, 2018



**We know litter is a problem.
Why measure it?**

“We cannot
improve what
we do not
measure”

ANTÓNIO GUTERRES, UN SECRETARY GENERAL
THE OCEAN CONFERENCE, NEW YORK, JUNE 2017





**Litter
Intelligence.**

Data. Insights. Action.

PROGRAMME PURPOSE

**Inspire and inform better decisions
for a world without litter.**

Government partners



Litter
Intelligence.



Ministry for the
Environment
Manatū Mō Te Taiao

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



Co-design of data quality
assurance and controls.
Environmental reporting.



Department of
Conservation
Te Papa Atawhai

Co-design of localised
adaption to UNEP/IOC
methodology.
Peer review of changes /
adaptations to methodology.

Programme Overview

OBJECTIVE #1

Understand the problem

Design & build
national litter
database

Train & support
Citizen Scientists
to collect data

Litter data
made widely
accessible

Data findings
inform better
decision-making

Data informs
more targeted
education



Data proves
effectiveness
of education

OBJECTIVE #2

Optimise solutions

Design & build
litter education
for curriculum

Train & support
Educators to
deliver education

Litter education
taught throughout
school system

Behaviour
change reduces
litter problem

Success Stories



"The data set that is being provided by Sustainable Coastlines is a huge advantage to the Ministry for the Environment as a public policy tool, as it shows the areas that are most problematic and highlights to us the things that can be fixed."



HON DAVID PARKER
MINISTER FOR THE
ENVIRONMENT

Our Promise To You



OPEN & FREE ACCESS
TO ALL DATA, FOREVER



IMMEDIATE ACCESS
TO YOUR DATA



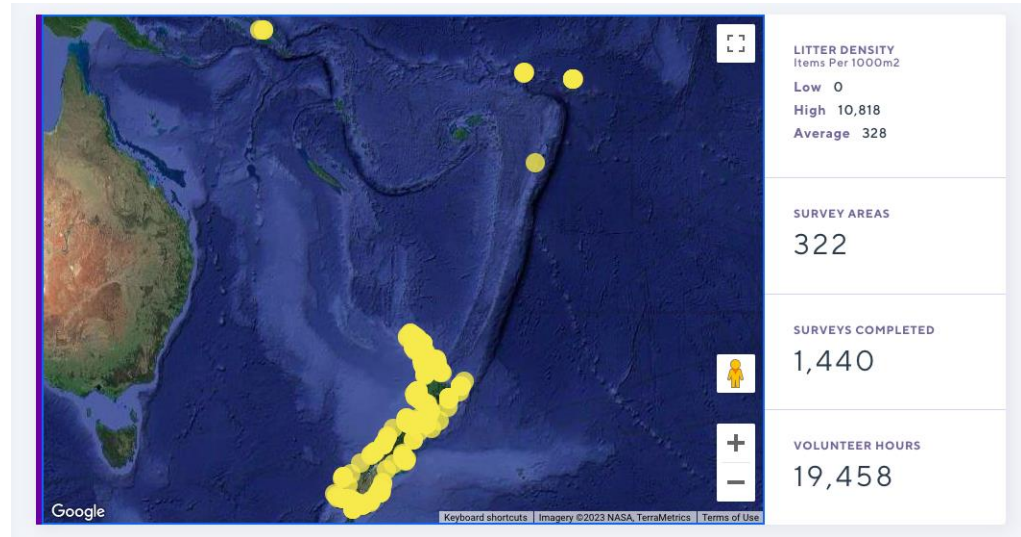
SCIENTIFICALLY RIGOROUS
BUT ALWAYS EASY TO USE

Interactive Exercise # 1

Visit the Insights page of the Litter Intelligence website.
Find:

- The nearest survey area to where you live?
- The most common litter item across all countries and surveys?

insights.litterintelligence.org





**Litter
Intelligence.**
Data. Insights. Action.

Equipment Overview

Become familiar with the equipment which makes up the Litter Intelligence kit.



**Litter
Intelligence.**
Data. Insights. Action.

Health & Safety equipment





**Litter
Intelligence.**

Data. Insights. Action.

Survey equipment





**Litter
Intelligence.**

Data. Insights. Action.

Audit equipment





Litter Intelligence.
Data. Insights. Action.

Data sheets



Litter Intelligence.
Data. Insights. Action.

Litter Categories

FOR REFERENCE DURING AUDIT

OFFICIAL
VERSION
3.0

How to use this

After your litter survey, take your rubbish to a safe and sheltered location to audit. Categorise your litter according to the categories below, copying the appropriate fields over to your **Audit Data** sheet and recording the count and weight as you go.

Health & Safety

Important instructions for some litter categories. Look for the icons below in the **H&S** column and follow instructions during your audit.

Biohazard: Only count item, do not weigh. Take extra caution. Only adults to touch.

Code	Plastic	H&S	Notes & Examples
PL2414	Bacterial habitat wheels		
PL13	Baskets, crates & trays		Includes fish bins
PL01	Bottle caps & lids		Toothpaste caps, nozzles, tops
PL01.01	Bottle neck rings		Milk bottle rings
PL01.02	Bottle seals & tabs		
PL02	Bottles <= 2 L		
PL03	Bottles, drums, jerrycans & buckets > 2 L		
PL24.06	Cable ties & zip ties		
PL10	Cigarette lighters		Vapes, vaping devices
PL11	Cigarettes, butts & filters		Butts, filters
PL24.03	Clothes pegs		
PL121	Cosmetics and medical packaging		Inhalers, cosmetics, pill packets, condom wrappers, chapstick. Excludes syringes
PL05	Drink package rings		Six-pack rings, ring carriers
PL22	Fibreglass fragments		
PL17	Fishing gear		Plastic lures, traps & pots, glow sticks, knife handles, snifters, burley pots, berley pots, light sticks, cyalume sticks
PL18	Fishing line		Monofilament line & braid
PL20	Fishing net		



Litter Intelligence.
Data. Insights. Action.

Audit Data

LITTER SURVEY ITEM & WEIGHT DATA

OFFICIAL
VERSION
3.0

How to fill this in

- After your litter survey, take your rubbish to a safe and sheltered location to audit. Use the **Litter Categories** sheet to help categorise. Record the count & weight for each category.
- Only count & weigh items above 5mm in size. Please record all weights in grams.
- In the "H/L" column, record how "Confident" you are that the weight is correct; it can be inaccurate when litter is wet or dirty. H = High, L = Low.
- When you have completed your audit, enter your data as soon as possible at app.litterintelligence.org. Tick the 'In App' column once you have entered each row to avoid double entry.

Survey info

Survey Area
Survey Date

Audit info

Audit Date Start Time
of Auditors End Time

Plastic pellet assessment

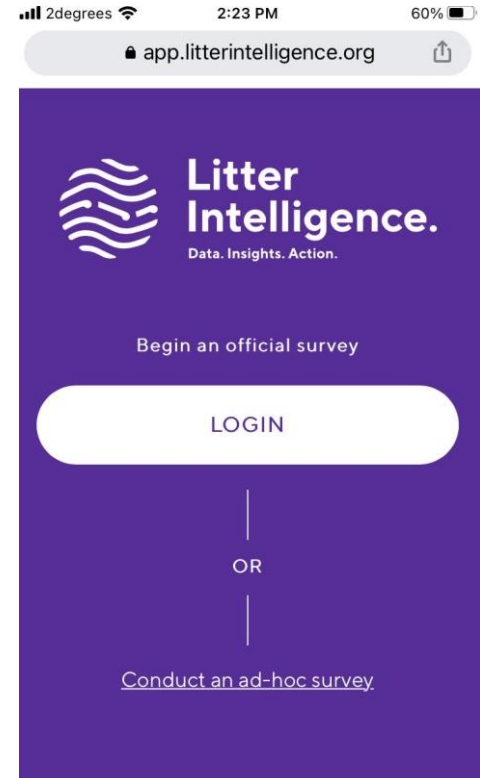
A B C D Circle one

A = None seen along survey area, B = 1-10 seen along survey area
C = 10-100 seen along survey area, D = More than 100 seen along survey area

#	Code	Material	Category name	Count	Weight (g)	H/L	In app
e.g.	PL01	Plastic	Unidentifiable hard plastic fragments	32	15	H	✓
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

Interactive Exercise # 2

Open your web browser on
your phone or computer and
go to
app.litterintelligence.org
and bookmark this web
address.





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Data. Insights. Action.

How to Conduct Your Litter Survey

Set up and conduct a litter survey on their chosen beach through the data entry app for a new or existing survey area.

The monitoring process



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Set-up survey area

1

Survey & remove litter

2

Repeat four times/year



Audit litter

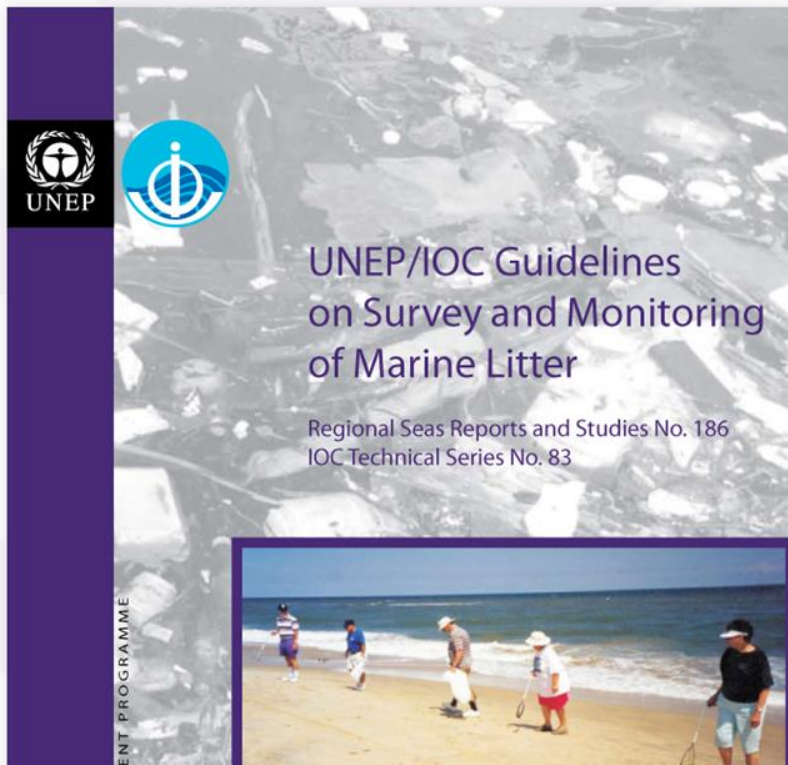
3



The methodology

Localised adaptation of the **United Nations Environment Program / Intergovernmental Oceanographic Commission** Guidelines on Survey and Monitoring of Marine Litter.

- Measures **litter flux**
- Global comparability
- Reporting on SDGs
- Rigorous, high quality data
- Great for citizen science



What are we monitoring?

Litter flux

How fast is litter accumulating at your survey area?

Litter composition

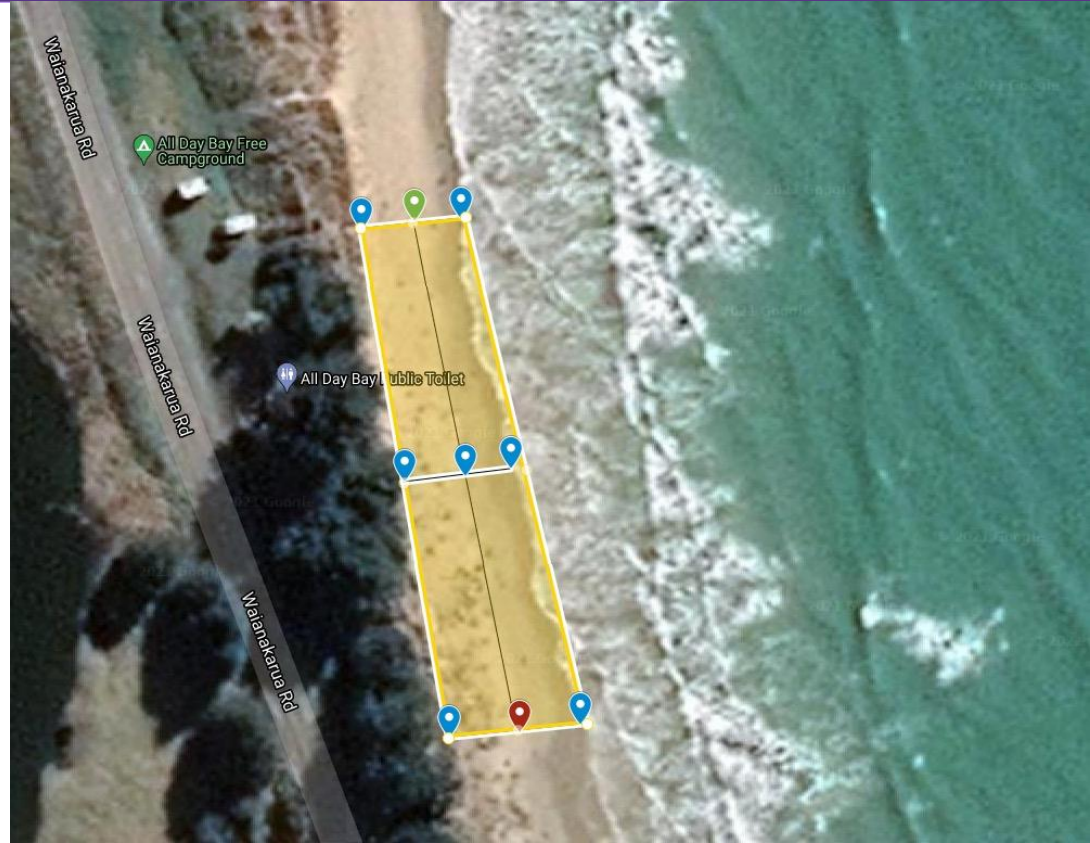
What materials and products is the litter at your survey area comprised of?



Survey area set up

Survey Area:

- 100 metres long
- 20 metres wide, maximum
- Start point is centered in aggregation zone
- Record start and end point GPS coordinates (Green & Red pins)





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Identify litter aggregation zone





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Mark start point of survey





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Measure 10m above and below





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Measure out the survey area





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Mark out at 50m and 100m





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Take three photos





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Photo 1: along the survey area





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Photo 2: towards the water





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Photo 3: towards the beach head





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Beach visual assessments

A

No litter present



B

**Predominantly free with
some minor instances**





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Plastic resin plastics

Plastic resin pellets shown here for size.



Example of a site with a Grade D rating.



A

None present: No pellets seen along the survey area.

B

Predominantly free: 1–10 pellets seen along the survey area.

C

Widespread: 10–100 pellets seen along the survey area.

D

Heavily affected: More than 100 pellets seen along the survey area.

Print and bring along to your survey to help categorise the beach surface.



Mud

Very fine, soft and often sticky surface when dust and earth mixes with water. Includes silt and clay and tidal areas around mangroves.



Sand

Made of finely divided rock, shell and minerals. From very fine sand (0.0625mm) up to 2mm in diameter, e.g., a grain of rice.



Gravel / pebble

Coarse and smooth rounded rock fragment sized between 2mm and 64mm. Fits in a small hand.

Cobbles

Smooth, rounded rocks larger between 64mm and 256mm. Cobble and rock rubble are in the same size range, but differ in shape and finish.



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Record suvey area details





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Survey set-up complete





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Have surveyors form into a muster line





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Intelligence.**

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Complete two full sweeps of the beach





**Litter
Intelligence.**

Data. Insights. Action.

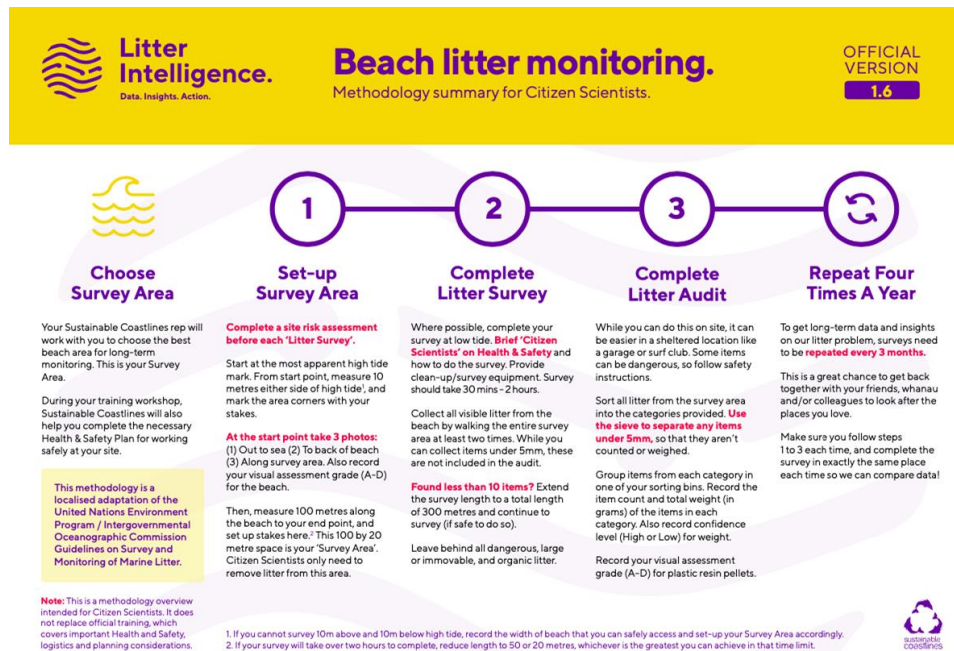
Record presence of large & dangerous items



Interactive Exercise # 3

- Visit the Litter Intelligence website and find the beach survey methodology summary.
- Remember to print and bring a copy of this document along to your survey as a reminder.

www.litterintelligence.org/about/beach-monitoring/





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Working Offline

Become familiar with the process of working in remote areas without mobile reception.

Using your handheld GPS

We have shipped handheld GPS units to each group

- They are all set up and ready for you to use
- Use the handheld GPS to record the start and end point coordinates for any new survey areas
- Use the handheld GPS to locate the start and end point for existing survey areas



Using your handheld GPS

Most handheld GPS units work in a similar way. For the eTrex you can:

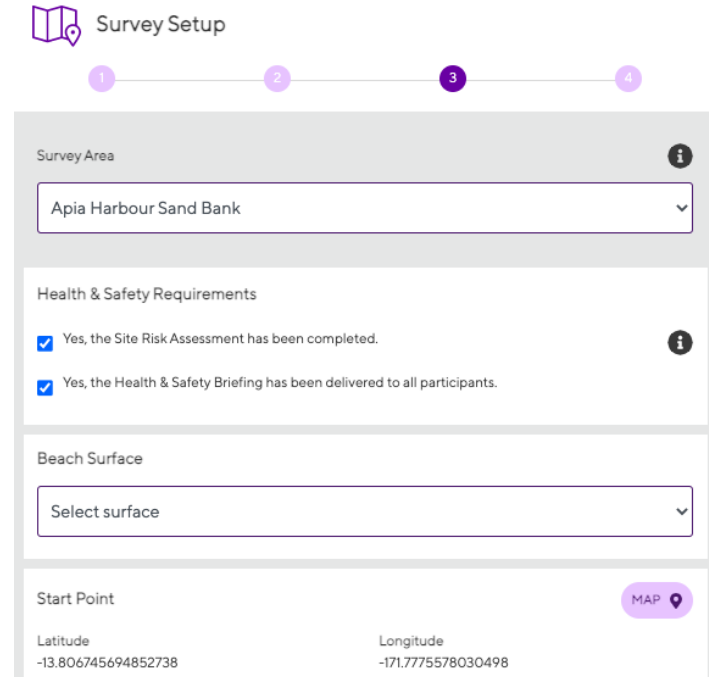
- Access the main menu using button 4
- Toggle between menu options using the toggle (3)
- It's recommended to read the user manual and have a go at navigating the functions prior to your survey



Survey area coordinates

If you are planning to survey an existing survey area:

- You can find the GPS coordinates for an existing survey area in the web app.
- Enter these coordinates into the handheld GPS as a new 'waypoint' using the 'Waypoint Manager' menu.
- Use the handheld GPS to navigate to the start and end point for the existing survey areas.



The screenshot shows the 'Survey Setup' form with a progress indicator at the top showing four steps, with step 3 being the active one. The form contains the following sections:

- Survey Area:** A dropdown menu with 'Apia Harbour Sand Bank' selected. An information icon is on the right.
- Health & Safety Requirements:** Two checkboxes, both of which are checked.
 - ☒ Yes, the Site Risk Assessment has been completed.
 - ☒ Yes, the Health & Safety Briefing has been delivered to all participants.An information icon is on the right.
- Beach Surface:** A dropdown menu with 'Select surface' selected. A downward arrow is on the right.
- Start Point:** A section with two input fields for coordinates.
 - Latitude: -13.806745694852738
 - Longitude: -171.7775578030498A 'MAP' button with a location pin icon is on the right.



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Intelligence.**
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Recording your survey data

- Use the “Survey Area and Large Items” data sheet to record your survey data manually at the beach
- Enter the survey data into the web app when you are back in wifi or mobile data coverage
- Your data can be entered into the webapp using a mobile device or desktop computer once you are back in wifi or mobile data coverage

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Intelligence.**
Data. Insights. Action.

Survey Details
SURVEY AREA & LARGE ITEM INFORMATION

OFFICIAL
VERSION
1.4

Survey Details				
Survey date			Name of organisation	
Monitoring group			Full name	
Lead citizen scientist				
Email address				
Phone number				
Survey area				
Site risk assessment complete?	☐		Required	
Health and safety briefing?	☐		Required	
Beach surface	Mud, Sand, Gravel/Pebble, Cobbles, Rock Rubble, Boulder, Bedrock, Shell, Artificial, Mixed Substrate, Unknown		Circle one	
Start Point location	Latitude:	Longitude:		
Start Point description			Describe landmarks or other physical features to help identify survey Start Point.	
Remember: Take 3 photos at start point (1) Out to sea (2) To back of beach (3) Along Survey Area				
End Point location	Latitude:	Longitude:		
End Point description			Describe landmarks or other physical features to help identify survey End Point.	
Survey Area size				
Above Start Point	_____metres		10m (or less, depending on beach conditions)	
Below Start Point	_____metres		10m (or less, depending on beach conditions)	
Total length	_____metres		Standard is 100m. Decrease for highly littered sites, or increase if fewer than 10 items found	
Visual Assessment Grade	A B C D		What's the visual assessment of the amount of litter on the overall beach? Select one.	
Add large item				
Category (if possible use standard codes)	Status (floating, sunken, stranded, buried)	Latitude (nnn.nnnnn NS)	Longitude (nnn.nnnnn EW)	Description
Survey info				
Start time:	End time:	Number of collectors:		
Add comments below.				
Record any relevant or unusual observations — weather, land events, floats, jetsam, etc. Note any items categorised as 'other', make suggestions for keywords and categories. Any other comments.				



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Health & Safety

Understand the processes & procedures to conduct a litter survey and audit safely.



**Litter
Intelligence.**

Data. Insights. Action.

How to assess risk

Risk Assessment Matrix – Rate as Very Low, Low, Moderate, High or Critical

	Very unlikely to happen	Unlikely to happen	Possibly could happen	Likely to happen	Very likely to happen
Catastrophic (Fatal)	Moderate	Moderate	High	Critical	Critical
Major (Disability)	Low	Moderate	Moderate	High	Critical
Moderate (Hospitalization)	Low	Moderate	Moderate	Moderate	High
Minor (First Aid)	Very Low	Low	Moderate	Moderate	Moderate
Superficial (No treatment)	Very Low	Very Low	Low	Low	Moderate



How to manage risk

How you will control the hazard – E or M

Most Effective	E – Eliminate	
	Remove it completely from the event or workspace	If not reasonably practicable:
	M - Minimize	
	Substitute the hazard	Minimize the risk, so far is reasonably practicable, by taking 1 or more of these actions that is the most appropriate
	Isolate the hazard	
	Use engineering controls	
	Use adaptive controls	If a risk remains you must minimize remaining risk, as far is reasonably practicable
Least Effective	Use personal protective equipment (PPE)	If risk remains then minimize using PPE



Litter Intelligence.
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Health and safety briefing



Asbestos

Extreme caution



Sharps

Extreme caution



Coastal terrain

Walk with care



Bee / wasp nests

Keep away



Nesting birds

Keep away



Wear proper H&S gear

Emergency Procedures

- Tsunami
- Earthquake
- First Aid
- Covid safety





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Hazardous Waste

Understand how to safely handle hazardous waste & substances found in your survey.



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Handling sanitary items

**Only count item.
Do not weigh.**

Only trained leaders to touch.



✗ Nappy wipes



✗ Nappy



✗ Toilet paper / tissues



✗ Face masks



**✗ Plasters / bandages
/ sports tape**



✗ Condom



✗ Tampon / pads



✗ Tampon applicator



Asbestos Safety

Do not touch!

Extremely hazardous material.



Exterior cladding



Corrugated roofing, guttering and spouting



Decramastic tiles



Piping



Insulation and lagging



Imitation brick cladding





WHAT TO DO IF YOU FIND ASBESTOS OR ASBESTOS CONTAINING MATERIALS (ACM)

- **Do not touch it!**

- Notify our staff immediately.
- Take photographs of the item and note its location.
- Notify the local council of its presence using the app Snap, Send, Solve.





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Handling medical sharps

Extreme caution.

High biohazard risk.



Examples of medical sharps.



Watch out for non-obvious sharps like lancets



Wear gloves



Don't put in rubbish or recycling bins.



Don't overfill container



Put it in sharp end first





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Let's go to
the beach!





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Litter Audit

Become familiar with the audit methodology, the **Litter Identification Guide** and common unusual litter items (+ exercise).



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Sort by material then by category





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Use sieve to exclude items smaller than 5mm





**Litter
Intelligence.**
Data. Insights. Action.

Count and weigh items in each category, zeroing the scales each time





**Litter
Intelligence.**

Data. Insights. Action.

Record on paper and in the app





Audit Data

LITTER SURVEY ITEM & WEIGHT DATA

OFFICIAL
VERSION
3.0

How to fill this in

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Survey info

Survey Area
Survey Date

Audit info

Audit Date Start Time
of Auditors End Time

Plastic pellet assessment **A B C D** Circle one

A = None seen along survey area, **B** = 1-10 seen along survey area
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#	Code	Material	Category name	Count	Weight (g)	H/L	In app
e.g.	PL01	Plastic	Unidentifiable hard plastic fragments	32	15	H	✓
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							



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Litter Categories

Plastic

Bacterial habitat wheels
Baskets, crates & trays
Bottle caps & lids
Bottle neck rings
Bottle seals & tabs
Bottles <= 2 L
Bottles, drums, jerrycans & buckets
Cable ties & zip ties
Cigarette lighters
Cigarettes, butts & filters
Clothes pegs
Drink package rings
Fibreglass fragments
Fishing gear
Fishing line
Fishing net
Food containers
Food wrappers
Gardening & farming related
Gloves
Hangers & retail packaging
Lollipop sticks
Cosmetics and medical packaging
Mesh bags
Parking tickets & receipts
Pens & Stationery
Plastic bags
Plastic buoys
Plastic sheeting
Plastic utensils
Plastic vehicle parts
Resin pellets
Rope
Safety & construction related
Shotgun wadding & shells
Strapping bands & tape
Straws
Syringes
Toys, Sport, & Recreation
Unidentifiable hard plastic fragments
Unidentifiable soft plastic fragments
Other Plastic (specify)

Foamed Plastic

Ear plugs
Foam buoys
Foam glazier spacers
Foam sponge
Polystyrene cups or food packs
Polystyrene insulation or packaging
Toys, Sport, & Recreation
Unidentifiable foamed plastic fragments
Other Foamed Plastic (specify)

Fabric & Textiles

Backpacks & bags
Canvas, sailcloth & sacking (hessian)
Carpet & furnishing
Clothing, towels and linen
Footwear & shoes
Rope, line or string (natural)
Other Cloth
Unidentifiable Cloth Fragments

Glass & Ceramic

Bottles & jars
Construction material
Fluorescent light tubes
Glass buoys
Glass or ceramic fragments
Light globes/bulbs
Tableware
Other Glass & Ceramic (specify)



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Intelligence.**

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Litter Categories cont'd

Metal

Aluminium drink cans
Bottle caps, lids & pull tabs
Fishing related
Foil wrappers
Gas bottles, drums & buckets (> 4 L)
Metal vehicle parts
Other cans & containers (<= 4L)
Sharps, needles, lancets, metal catheters
Tableware
Construction material
Unidentifiable metal fragments
Other Metal (specify)

Paper & Cardboard

Cardboard boxes
Cups, food trays & wrappers
Tetrapaks
Fireworks
Paper, newspapers & paper receipts
Unidentifiable paper & cardboard fragments
Other Paper & Cardboard (specify)

Wood

Corks
Fishing traps and pots
Matches and wooden fireworks parts
Processed timber & pallet crates
Wooden utensils
Other Wood (specify)

Rubber

Sports & Recreation
Chewing gum
Condoms
Gloves
Inner-tubes and rubber sheet
Rubber bands
Rubber footwear
Tyres
Construction & Automotive
Unidentifiable rubber fragments
Other Rubber (specify)

Other

Appliances & electronics
Batteries (Household)
Batteries (Non-household)
Boat parts
Cotton buds
Faeces
Paraffin or wax
Personal care items
Sanitary items
Other (specify)



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All materials

Broad vs specific categories





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Plastic Bottle tops/lids, neck rings, & seal tabs





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Plastic Fishing related





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Intelligence.**

Data. Insights. Action.

All materials Unidentifiable fragments





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Plastic Food wrappers





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**All materials
'Other' category**





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Cotton buds vs lollipop sticks



Interactive Exercise # 4

- Visit the Litter Intelligence website and find the Litter Category Sheet and Audit Data Sheets.
- Remember to print and bring a copy of these documents along to your survey.

www.litterintelligence.org/about/beach-monitoring/



Litter Categories
FOR REFERENCE DURING AUDIT

OFFICIAL VERSION

3.4

How to use this document

After your litter survey, take your rubbish to a safe and sheltered location to audit. Categorise your litter according to the categories below, copying the appropriate fields over to your Audit Data sheet and recording the count and weight as you go.

Health & Safety

Important instructions for some litter categories. Look for the icons below in the H&S column and follow instructions during your audit.

! Take extra caution. Only adults to touch.

X Biohazard. Only count, do not touch. Only trained leaders to touch.

Code	Plastic	H&S	Notes & Examples
PL24.14	Bacterial habitat wheels		
PL13	Baskets, crates & trays		Includes fish bins
PL01	Bottle caps & lids		Toothpaste caps, nozzles, tops
PL01.01	Bottle neck rings		Milk bottle rings
PL01.02	Bottle seals & tabs		
PL02	Bottles <= 2 L		
PL03	Bottles, drums, jerrycans & buckets > 2 L		
PL24.06	Cable ties & zip ties		
PL10	Cigarette lighters		Vapes, vaping devices
PL11	Cigarettes, butts & filters		Butts, filters
PL24.03	Clothes pegs		
PL12.1	Cosmetics and medical packaging		Inhalers, cosmetics, pill packets, condom wrappers, chapstick. Excludes syringes
PL05	Drink package rings		Six-pack rings, ring carriers
PL22	Fibre/glass fragments		
PL17	Fishing gear		Plastic lures, traps & pots, glow sticks, knife handles, snifters, burley pots, barfy pots, light sticks, cyclone sticks
PL18	Fishing line		Monofilament line & braid
PL20	Fishing net		
PL06	Food containers		Fast food, cups, lunch boxes, bread bag tags, coffee cups & lids, plastic fish, soy sauce packets, condiment packets
PL07.01	Food wrappers		Candy, mussels bars, candies, lolly wrappers, fruit sticker
PL24.07	Gardening & farming related		Plant bags & pots, hose, plastic pipes, plant label, weed matting, vine ties, tubes, esophagus clip, esophagus clip, bolus, french capsule, capsules
PL09	Gloves		
PL24.11	Hangers & retail packaging		Retail packets, coat hangers, barcodes, tags, RFID, hooks, labels, silica pouches, gel sachet
PL24.04	Lollipop sticks		Lolly stick
PL15	Mesh bags		Vegetable, oyster nets & mussel bags, nets, netting, fruit elasticated mesh
PL24.10	Parking tickets & receipts		Windshields
PL24.02	Pens & Stationery		Plastic pencils, glue sticks, binders, folders, laminating sheets, clips, vivids



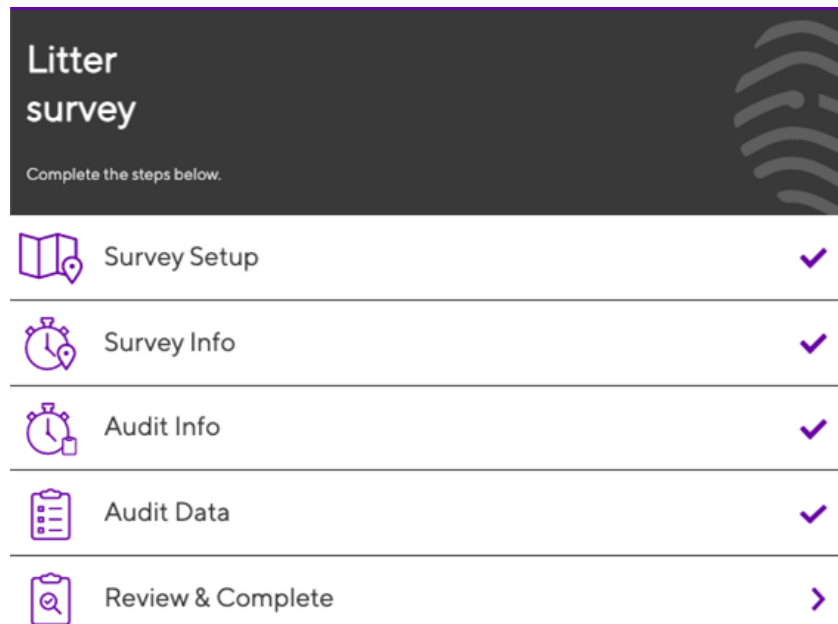
**Litter
Intelligence.**
Data. Insights. Action.

Review & Submit

Understand the post-survey & audit process.

Review your data

- Before you submit your data you'll need to review it in the web app.
- Review your data via the **'Review & Complete'** menu.
- This is an important last step that ensures data quality and accuracy.
- If you find any errors you can edit the data by navigating back to the 'Survey Home' menu and then into the relevant menu from there



Check Survey Area data

- Is the **Survey Area** displayed on the map correct?
- Is the **Survey Area Size** dimensions correct?

TIP: If you find any errors you can edit the data by navigating back to the 'Survey Home' menu and then into the relevant menu from there.

Survey Details

August 29, 2022
Sustainable Coastlines

Survey Area
Apia Harbour Sand Bank



Visual Assessment Grade
B

Survey Area Size
Above start point: 5m
Below start point: 4m
Total length: 227m

Review the audit data

- Check that the **litter categories, counts and weights** are correct.
- Add any relevant **comments** into the comments section.
- Once you have checked your data is correct, submit your survey using the **Submit Survey Data** button.

Citizen Scientists

Lead Citizen Scientist

Ben Knight
0221974100
ben@sustainablecoastlines.org

Number of Citizen Scientists
5

Summary

Total Volume Estimate
30 L

#	Plastic	weight (g)
8	Resin pellets	N/A
5	Bottle caps & lids	12
3	Bottles <= 2 L	227
Foamed Plastic		
2	Foam buoys	1300
Glass & Ceramic		
5	Bottles & jars	769

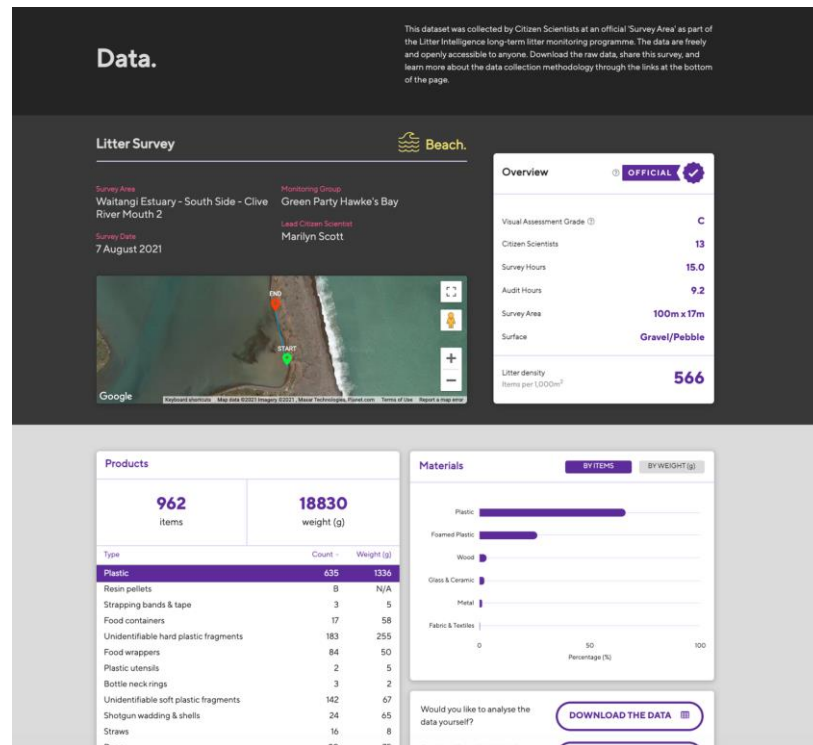
Add a comment

Record any relevant or unusual observations - weather, land events, flotsam, jetsam, etc. Note any items categorised as "Other", make suggestions for keywords & categories, & any other comments.

SUBMIT SURVEY DATA ✓

After your survey

- Contact us with any survey specific queries or issues.
- You will receive an **email with a link to your data.**
- We will follow-up with you to verify the data & make it publicly available.
- Join our Citizen Scientists Facebook group.





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Questions & Discussion

Understand any gaps in knowledge from our audience.



Litter
Intelligence.

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Thanks!





Litter Intelligence.

Data. Insights. Action.



Brought to you by
Sustainable Coastlines

IN COLLABORATION WITH



Ministry for the
Environment
Manatū Mō Te Taiao

Stats **NZ**
Tatauranga Aotearoa



Department of
Conservation
Te Papa Atawhai

What we do

An aerial photograph of a coastline. The water is a deep turquoise color, transitioning to a lighter, sandy beach area. A dense line of green trees runs along the right side of the image, bordering the beach. The overall scene is bright and clear, suggesting a healthy coastal environment.

PURPOSE

REDUCING OCEAN LITTER
TOGETHER

IMPACT

60% LESS COASTAL
LITTER BY 2030

Approach

WE INSPIRE CHANGE IN
MINDSETS, BEHAVIOUR,
POLICIES AND PRACTICES,
THROUGH COMMUNITY
ENGAGEMENT & CITIZEN
SCIENCE



1.65 million
LITRES OF LITTER CLEANED UP

REFERENCE

Sustainable Coastlines > Our Impacts
sustainablecoastlines.org/about/our-impacts/



10th

MOST WASTEFUL COUNTRY

URBAN WASTE PRODUCTION PER CAPITA

REFERENCE

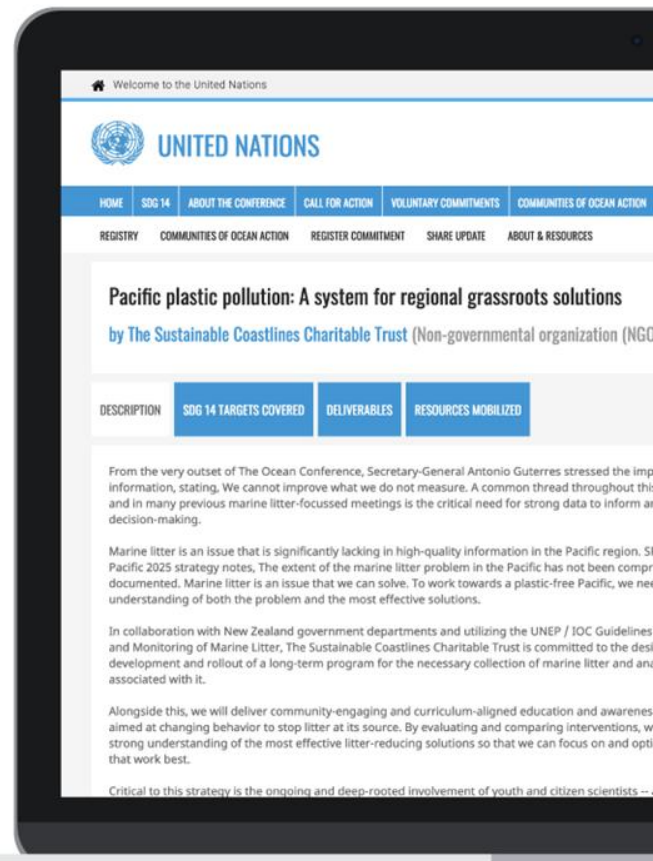
World Bank "What a Waste 2.0" Report, 2018



**We know litter is a problem.
Why measure it?**

“We cannot
improve what
we do not
measure”

ANTÓNIO GUTERRES, UN SECRETARY GENERAL
THE OCEAN CONFERENCE, NEW YORK, JUNE 2017





**Litter
Intelligence.**

Data. Insights. Action.

PROGRAMME PURPOSE

**Inspire and inform better decisions
for a world without litter.**

Government partners



Litter
Intelligence.



Ministry for the
Environment
Manatū Mō Te Taiao

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



Co-design of data quality
assurance and controls.
Environmental reporting.



Department of
Conservation
Te Papa Atawhai

Co-design of localised
adaption to UNEP/IOC
methodology.
Peer review of changes /
adaptations to methodology.

Global collaboration



Litter
Intelligence.



Concept launched at
the UN World Ocean
Conference, 2017.



Adapted from the
UNEP/IOC global
litter methodology.

Presented at UN
Environment
Assembly, 2019.



Regularly present
updates at GPML
meetings.



Presented at Pacific
Environment Forum,
2019, and Clean Pacific
Roundtable, 2022.

Programme Overview

OBJECTIVE #1

Understand the problem

Design & build
national litter
database

Train & support
Citizen Scientists
to collect data

Litter data
made widely
accessible

Data findings
inform better
decision-making

Data informs
more targeted
education



Data proves
effectiveness
of education

OBJECTIVE #2

Optimise solutions

Design & build
litter education
for curriculum

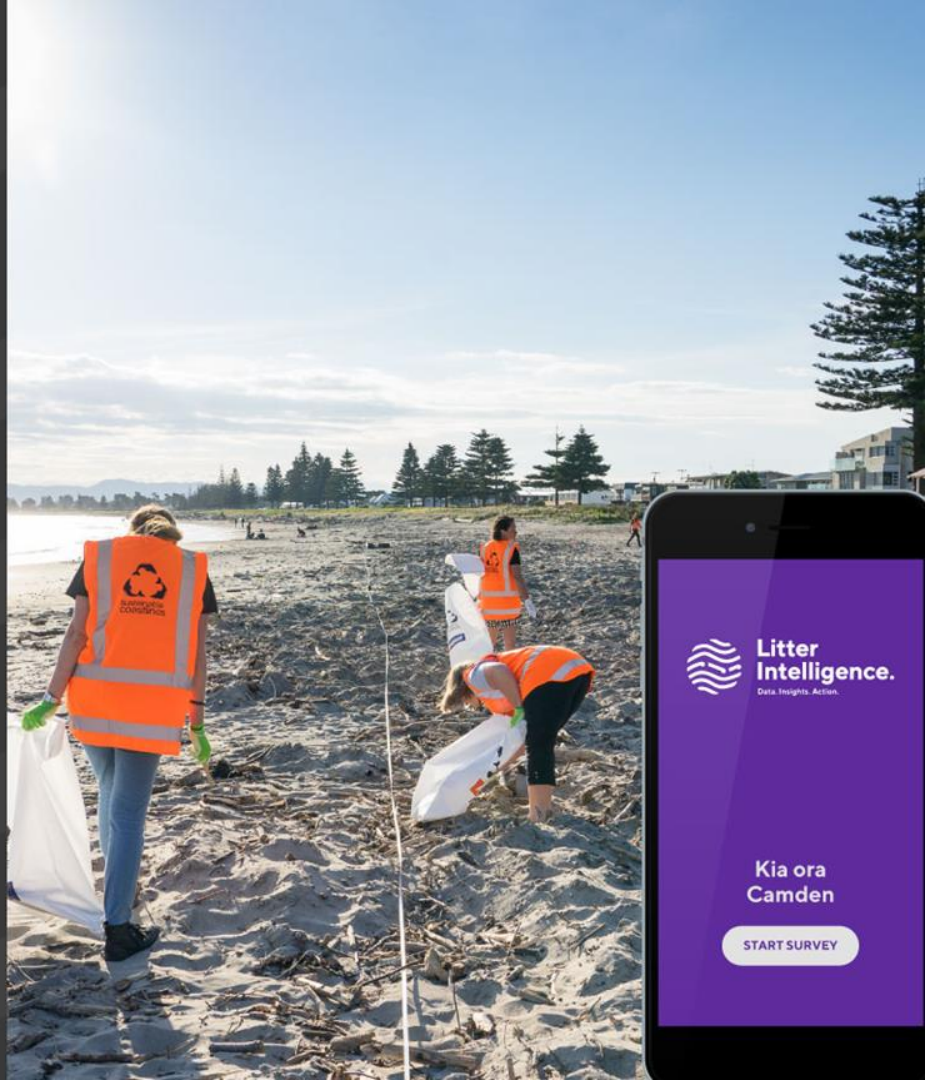
Train & support
Educators to
deliver education

Litter education
taught throughout
school system

Behaviour
change reduces
litter problem

Data.

Long-term litter monitoring by trained Citizen Scientists.



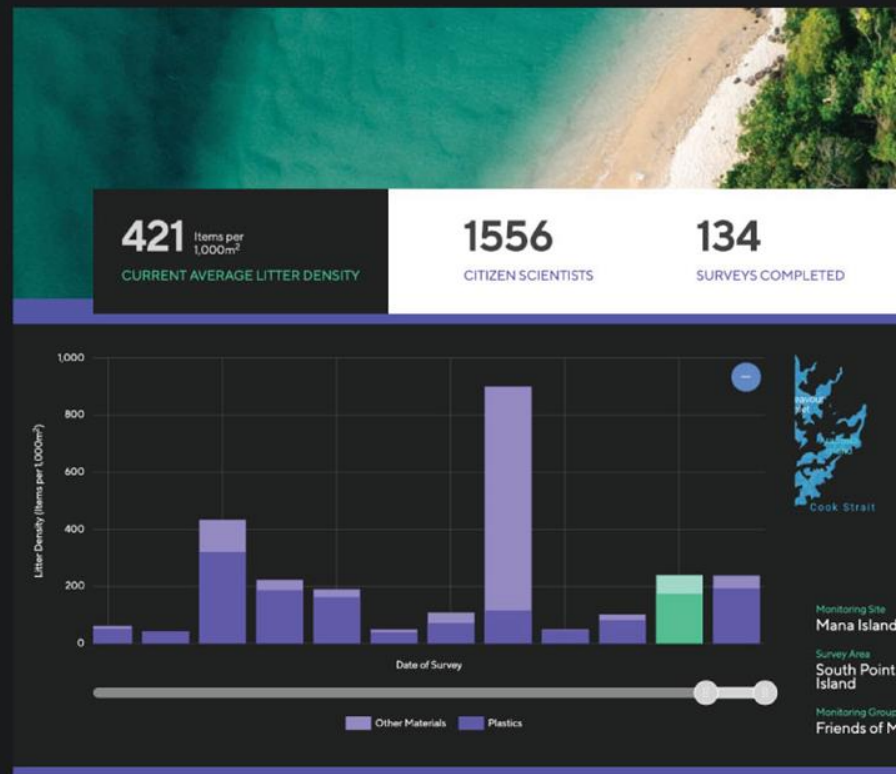
Insights.

Smart technology for data visualisation and powerful insights.



**Litter
Intelligence.**

Data. Insights. Action.



Action.

**'Action Stories' and
schools Education
Programme to solve
the issue long-term.**



**Litter
Intelligence.**

Data. Insights. Action.

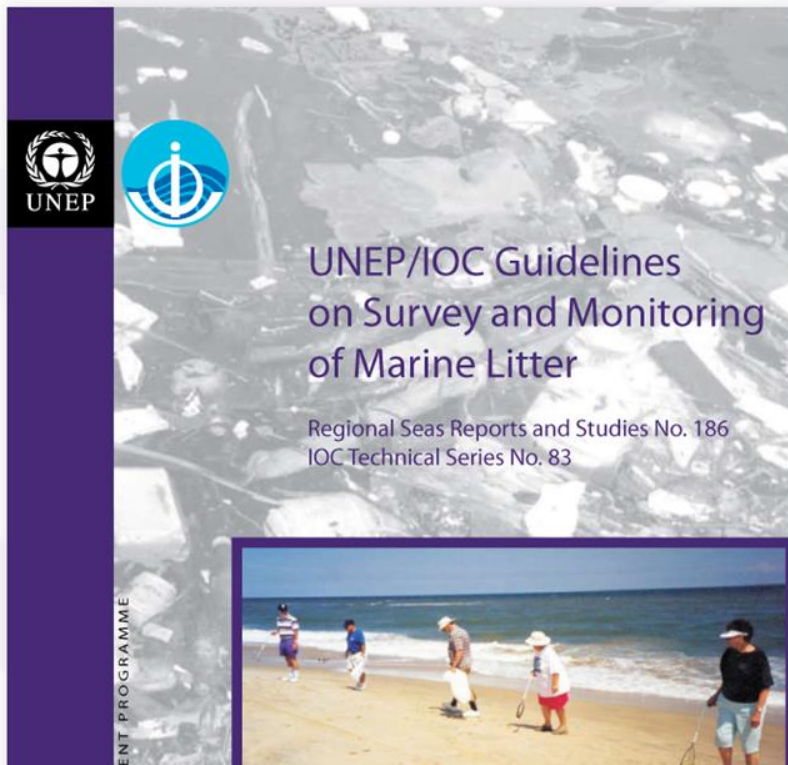


The methodology



Localised adaptation of the **United Nations Environment Program / Intergovernmental Oceanographic Commission** Guidelines on Survey and Monitoring of Marine Litter.

- Measures **litter flux**
- Global comparability
- Reporting on SDGs
- Rigorous, high quality data
- Great for citizen science



The monitoring process



Litter
Intelligence.

Set-up survey area

1

Survey & remove litter

2

Repeat four times/year



Audit litter

3



Data quality



Quality Assurance



Quality Controls



Data Dictionary



Open Data Policy



Data Governance Group



Privacy & Security

QAQC available at litterintelligence.org

SUSTAINABLE COASTLINES CHARITABLE TRUST

LITTER INTELLIGENCE
QUALITY ASSURANCE AND QUALITY CONTROLS

Version 1.0

Prepared by: Camden Howitt, Shawn Elise Tierney, Shelley Butt, Ben Knight

Date: 15 October 2020

Purpose of document:

This document provides an overview of the Quality Assurance measures and Quality Controls that have been established to ensure that the Litter Intelligence Citizen Science programme consistently produces high-quality, credible and scientifically rigorous data.

Our **Quality Assurance** measures are proactive, and include the systems and processes we have built into the Litter Intelligence programme, training and technology that aim to prevent and minimise errors, and ensure data quality.

Our **Quality Controls** are reactive and corrective processes that we have put in place to identify and resolve any data entry/user issues or errors, to ensure the data that appears on the Litter Intelligence platform is robust and can be trusted.

These measures are important for providing ongoing confidence in data collected through this programme, and more broadly to instill confidence and trust in Citizen Science data for the widest audience possible including environmental reporting.

The *Litter Intelligence Data Governance Group* will peer review this document and – pending changes and approval – this document will be published on the Litter Intelligence website to add to the credibility and transparency of the programme and its data.

Objectives:

Citizen scientist training levels



CITIZEN
SCIENTIST



LEAD



TRAINER



TRAINER
CERTIFIER

Criteria & benefits

- ✓ Can assist with litter survey and audit processes.
- ✓ Can submit 'Ad Hoc' litter surveys to the Litter Intelligence database.

- ✓ Attends 'Citizen Scientist' workshop.
- ✓ Organises and leads litter survey and audit activities, ensures data submitted to the platform meets 'Official' data standard.
- ✓ Has their own login to the platform, enabling them to submit 'Official' data.
- ✓ Can earn 'Survey' badges.

- ✓ Attends 'Train the Trainer' workshop.
- ✓ Organises and runs 'Citizen Scientist' workshops and certifies/signs off Citizen Scientists who attended their workshops.
- ✓ Is a 'Lead' Citizen Scientist and has submitted a minimum of 2 surveys to the official database.
- ✓ Can earn 'Workshop' badges.

- ✓ Attends 'Certifier' workshop.
- ✓ Organises and runs 'Train the Trainer' workshops and certifies Trainers.
- ✓ Is 'Trainer' and has run a minimum of 2 x Citizen Scientist workshops and submitted a minimum of 8 x surveys to the official database.

Training required

NO TRAINING
REQUIREMENTS*

CITIZEN SCIENTIST
WORKSHOP

TRAIN THE TRAINER
WORKSHOP

CERTIFIER
WORKSHOP

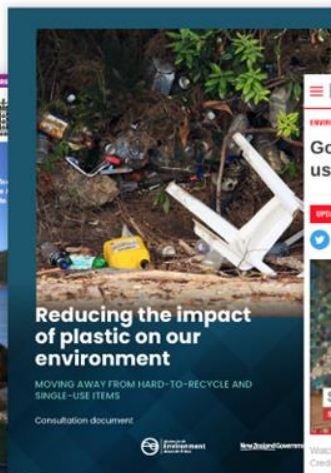
Surveys



*Citizen Scientists with no training
can continue to submit 'Ad Hoc' litter surveys.

Success stories

GOVERNMENT



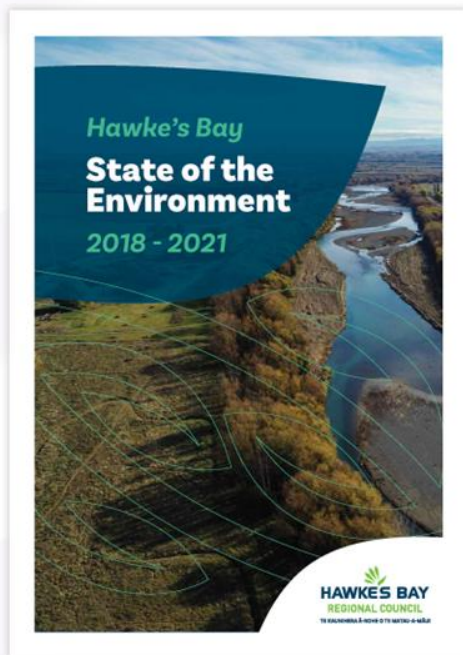
"The data set that is being provided by Sustainable Coastlines is a huge advantage to the Ministry for the Environment as a public policy tool, as it shows the areas that are most problematic and highlights to us the things that can be fixed."



HON DAVID PARKER
MINISTER FOR THE
ENVIRONMENT

Success stories

LOCAL GOVERNMENT



Litter Intelligence

Globally, plastic has been found throughout coastal and marine environments, even in remote locations like the deep sea. In Hawke's Bay, plastic particles have been found in core samples in both estuarine and sandy beach environments.

Across 35 surveys since 2019, the Litter Intelligence programme¹ has found that plastic is the most common type of litter in the coastal environment, representing 70% of all rubbish items collected (Figure 14-10). Rubber, wood, glass, and ceramic were the heaviest types of rubbish collected, with wood contributing 59% of the total weight of rubbish collected.

Ahuriri Estuary had the highest litter density of the sites in the region, and Waitangi Estuary had the second highest (Figure 14-11). Both estuaries are important habitats for Hawke's Bay's coastal indigenous bird populations (see Biodiversity in Hawke's Bay section).



Figure 14-10 Summary of litter items found in Hawke's Bay. Litter intelligence surveys.

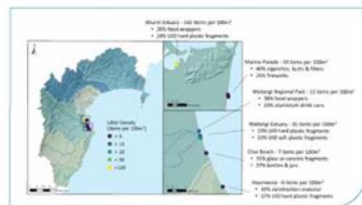


Figure 14-11 Litter density and top litter items at Litter Intelligence survey sites.

Ahuriri Estuary had the highest litter density of the sites in the region, and Waitangi Estuary had the second highest. Both estuaries are important habitats for Hawke's Bay's coastal indigenous bird populations.



STATE OF THE ENVIRONMENT
2018-2021

Success stories

BUSINESS



Litter
Intelligence.

Litter Intelligence - Glass Protectors - X +

litterintelligence.org/action/glass-protectors-from-foam-plastic-to-corktastic/

Glass Protectors: From Foam-Plastic to Corktastic

Submitted by: Sustainable Coastlines

Region: Taranaki

Product Types: Foam glazier spacers

Solution Types: Prevention

A local glass company responds to concerns about their foam pads on the beach with a sustainable solution.

Kiwi company Altherm Windows and Doors made the switch from blue plastic foam pads, which separated their glass sheets, to cork pads. The cork pads are a more sustainable option, made from renewable resources that break down faster.

The change came after members of Taranaki Conservationists and Litter Intelligence data collectors (or citizen scientists) decided to find the local source of the foam pads that were washing up on their local beaches. After contacting Altherm, and notifying them about the issue, the company recognised how easy it was for the pads to reach waterways through the stormwater drain right next to their workshop. Altherm decided to make the change and take a more sustainable approach by adopting the cork pads as an environmentally friendly alternative that still works a treat.

Explore this action further

Taranaki Conservationists Facebook post
<https://www.facebook.com/2706784974062/posts/3226957460752143/?id=>



Litter Intelligence - Solving the Mystery of the Shotgun Wads - X +

litterintelligence.org/action/solving-the-mystery-of-the-shotgun-wads/

Solving the Mystery of the Shotgun Wads

Submitted by: Sustainable Coastlines

Region: Taranaki

Product Types: Shotgun wadding & shells

Solution Types: Product Design, Campaigns, Education

Detective work by students persuades a local gun club to switch to a biodegradable alternative.

Students from Oakura School and Highlands Intermediate in Taranaki were puzzled when they repeatedly came across shuttlecock-shaped plastic shotgun wads washed up on local beaches. With the help of Taranaki District Council, Taranaki Fish & Game Council, MetOcean Solutions and Project Hotspot - an initiative which uses citizen science to better protect threatened coastal species - the wads were traced back to a clay pigeon shoot which takes place each March over the Manganui River. A computer software model confirmed that plastic wads would be carried down the Manganui River, into the Waitara River, and out to sea before being deposited along the coast north and south of New Plymouth at the sites noted by the students. The schools' discovery has encouraged Inglewood Rod and Gun Club members to phase out plastic wads and make the switch to biodegradable ones.

SHARE THIS SOLUTION

Explore this action further

Read: 'Shooters urged to adopt environmental-friendly ammunition'
<https://www.nz.co.nz/news/national/319796/shooters-urged-to-adopt-environmental-friendly-ammunition>

Read: 'Citizen science: Students solved the mystery of the shotgun wads'



Success stories

COMMUNITY / NON-PROFIT



Litter Intelligence.

Litter Intelligence - A Creative Vision from the Waitohi Youth

A Creative Vision from the Waitohi Youth

Submitted by: Sustainable Coastlines

Youth council creates a mural to bring colour to a local litter issue.

Students planned their own mural design and enlisted help from talented peers outside their project group to collaboratively render the first panel for the community mural. The project is ongoing with other schools in the area involved in the Litter Intelligence Education Programme and contributing additional panels promoting the environmental responsibility of protecting the local beach.

"Shelley Beach is something really important to them and has been a place that they identify in their community, so it's great they can take notice as to why it's important to them and convey that through art." - Jodie Griffiths, Marlborough District Council.

The mural received a blessing on its unveiling from local iwi. In attendance on the morning were young people, Councillors, iwi, business community & Queen Charlotte College principal & staff. The young people involved have now had two further requests for murals in Picton.

Region: Marlborough

Product Types: Plastic, Foamed Plastic, Cloth, Glass & Paper & Cardboard, Rubber, Wood, Other

Solution Types: Campaigns, Education



[SHARE THIS SOLUTION](#)

Explore this action further

Picton hidden gem now out in open thanks to youth mural

Litter Intelligence - The Power of Storytelling

The Power of Storytelling

Submitted by: Sustainable Coastlines

Students moving from consumers to creators are getting front-page media attention.

Students from Campion College, Gisborne, have been exploring storytelling and influencing skills to spread their environmental message. Proof of their newfound skills became evident after securing the lead environmental story in a regional paper, the Gisborne Herald, that is read by approximately 27,000 people (Source: Nielsen Consumer and Media Insights).

Their journey started with a beach survey that uncovered the problem. Next came the inquiry to investigate the issues and effects. Finally, it was time to step into action that included a wearable art costume to raise awareness of plastic alternatives and a compelling video describing the environmental conscience of a disengaged teenager, Georgia Jobson, scripted her initial telephone call to the newspaper. They were so impressed they sent out the chief reporter and photographer to cover the scoop.

If you want to move your school and your community from consumers to creators then contact education@litterintelligence.org

Region: Gisborne

Product Types: Plastic, Foamed Plastic, Cloth, Glass & Ceramic, Metal, Paper & Cardboard, Rubber, Wood, Other

Solution Types: Campaigns, Education



[SHARE THIS SOLUTION](#)

Explore this action further

Students take beach litter audit, Citizen scientists from Campion clean up Waipapa river mouth

<http://www.gisborneherald.co.nz/environment/20190805/students-take-beach-litter-audit-citizen-scientists-from-campion-clean-up-waipapa-river-mouth/>

Filters[Reset Filters](#)**Beach**[Freshwater](#)[Stormwater](#)

All Location Types ▾

**New Zealand**[Reset](#) ^

New Zealand ▾

All Regions ▾

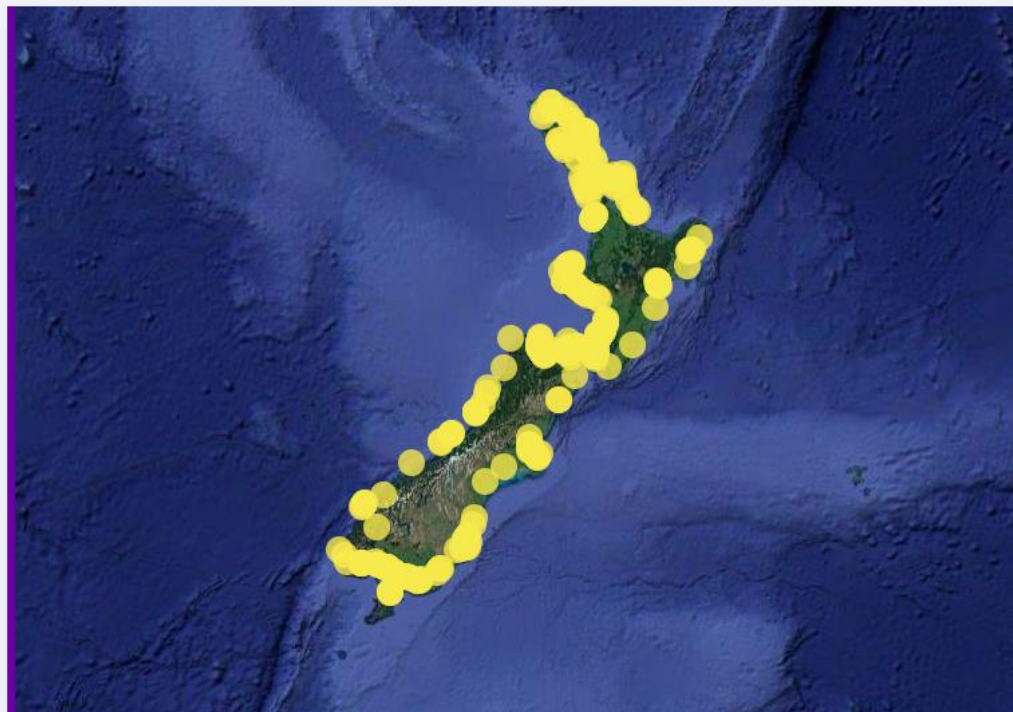
All Survey Areas ▾

Apply Filter

All Litter Types ▾



All Time ▾

[All Location Types](#)**New Zealand**[All Litter Types](#)[All Time](#)**Survey Locations** ?**LITTER DENSITY**
Items Per 1000m2

Low 0

High 10,818

Average 314

SURVEY AREAS**312****SURVEYS COMPLETED****1,486****VOLUNTEER HOURS****19,131**

Filters

[Reset Filters](#)

Beach

Freshwater

Stormwater



All Location Types ▾



New Zealand

[Reset](#) ^

New Zealand ▾

All Regions ▾

All Survey Areas ▾

Apply Filter



All Litter Types ▾



All Time ▾

Materials & Products

TOTAL ITEM COUNT

426,974

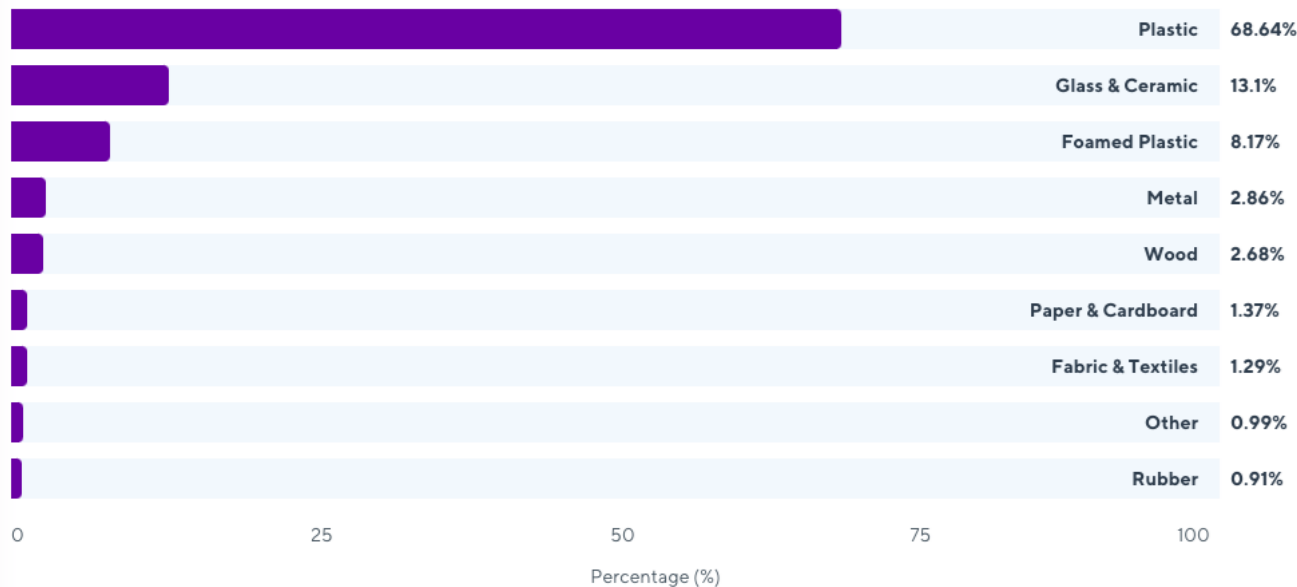
TOTAL WEIGHT (KG)

9,822.93

PERCENTAGE OF TOTAL ITEMS

ITEMS

WEIGHT



Reset Filters

Stormwater

All Location Types

New Zealand

New Zealand

All Regions

All Survey Areas

Apply Filter

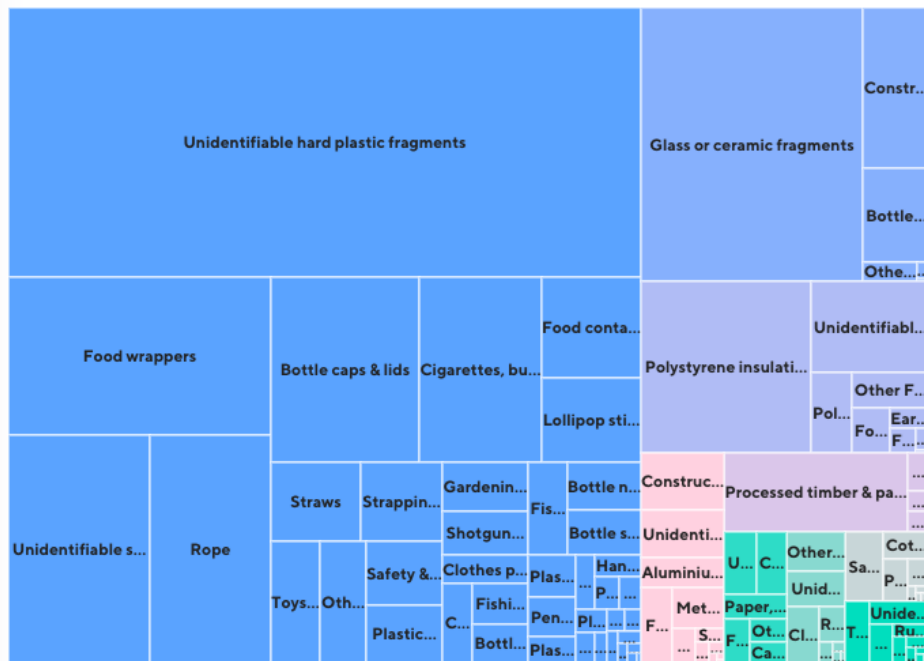
All Litter Types

All Time

TOTAL ITEMS

ITEMS

WEIGHT



Plastic	68.64%
Glass & Ceramic	13.1%
Foamed Plastic	8.17%
Metal	2.86%
Wood	2.68%
Paper & Cardboard	1.37%
Fabric & Textiles	1.29%
Other	0.99%
Rubber	0.91%

Filters
[Reset Filters](#)
[Beach](#)
[Freshwater](#)
[Stormwater](#)


All Location Types ▾


New Zealand
[Reset](#) ^

New Zealand ▾

All Regions ▾

All Survey Areas ▾

Apply Filter


All Litter Types ▾

#	PRODUCT	MATERIAL	TOTAL ITEMS	% OF TOTAL
1	Unidentifiable hard plastic fragments	Plastic	120,091	28.13 %
2	Glass or ceramic fragments	Glass & Ceramic	42,961	10.06 %
3	Food wrappers	Plastic	29,333	6.87 %
4	Unidentifiable soft plastic fragments	Plastic	22,801	5.34 %
5	Polystyrene insulation or packaging	Foamed Plastic	20,466	4.79 %
6	Rope	Plastic	19,581	4.59 %
7	Bottle caps & lids	Plastic	19,395	4.54 %
8	Cigarettes, butts & filters	Plastic	16,007	3.75 %
9	Processed timber & pallet crates	Wood	10,214	2.39 %
10	Unidentifiable foamed plastic fragments	Foamed Plastic	7,651	1.79 %

1 - 10 of 111



Filters[Reset Filters](#)**Beach**[Freshwater](#)[Stormwater](#)

All Location Types ▾

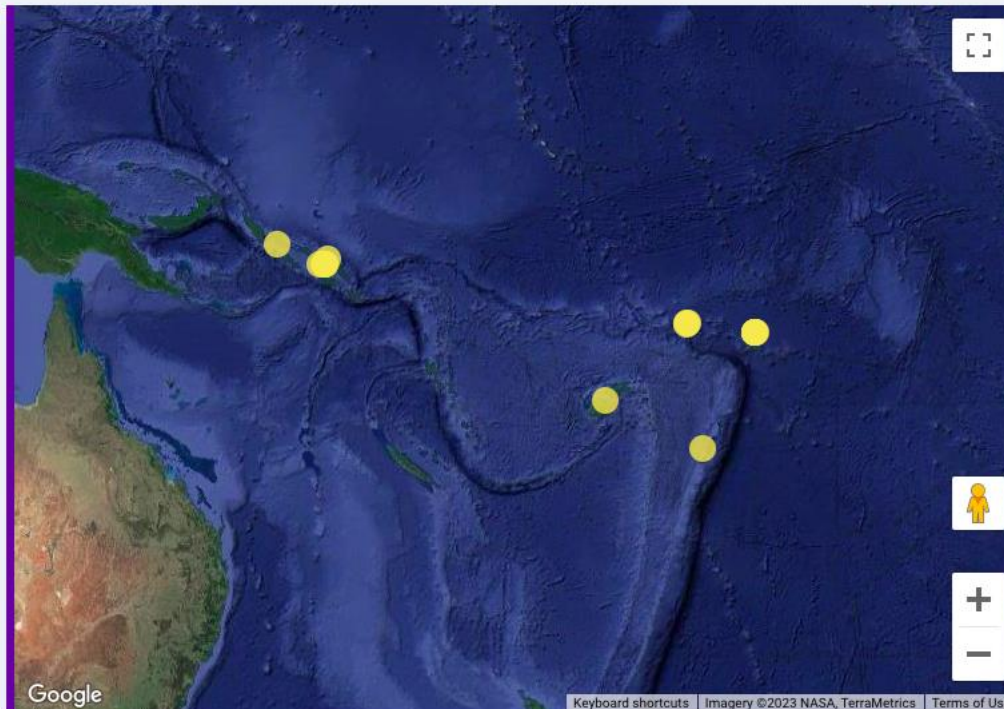
Samoa, Tonga, ... [Reset](#) ^Samoa, Tonga, Wallis &
Futuna, Fiji, Solomon
Islands ▾

All Regions ▾

All Survey Areas ▾

Apply Filter

All Litter Types ▾

[All Location Types](#)**Samoa, Tonga, Wallis & Futuna, Fiji, Solomon Islands**[All Litter Types](#)[All Time](#)**Survey Locations** ?**LITTER DENSITY**
Items Per 1000m2

Low 69

High 74,666

Average 4,884

SURVEY AREAS

17

SURVEYS COMPLETED

19

VOLUNTEER HOURS

1,301

Filters

[Reset Filters](#)**Beach**

Freshwater

Stormwater



All Location Types ▾



Samoa, Tonga, ...

[Reset](#) ^Samoa, Tonga, Wallis &
Futuna, Fiji, Solomon
Islands ▾

All Regions ▾

All Survey Areas ▾

Apply Filter



All Litter Types ▾

Materials & Products

TOTAL ITEM COUNT

21,837

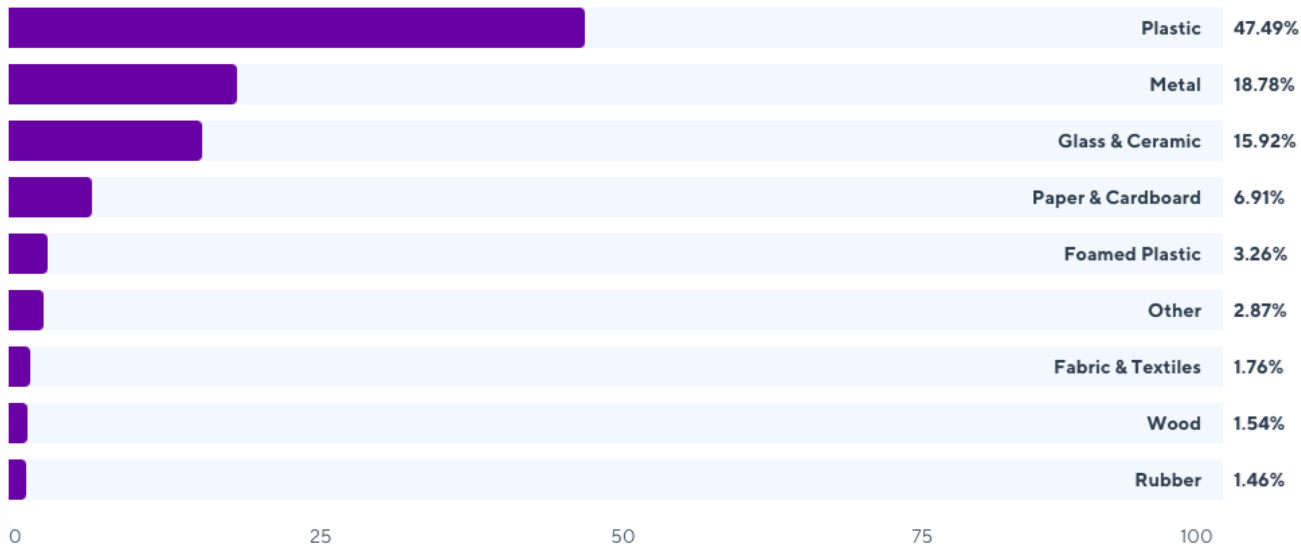
TOTAL WEIGHT (KG)

1,714.44

PERCENTAGE OF TOTAL ITEMS

ITEMS

WEIGHT



Percentage (%)

Filters
[Reset Filters](#)
Beach
[Freshwater](#)
[Stormwater](#)


All Location Types ▾


Samoa, Tonga, ...
[Reset](#) ^

Samoa, Tonga, Wallis & Futuna, Fiji, Solomon Islands ▾

All Regions ▾

All Survey Areas ▾

Apply Filter

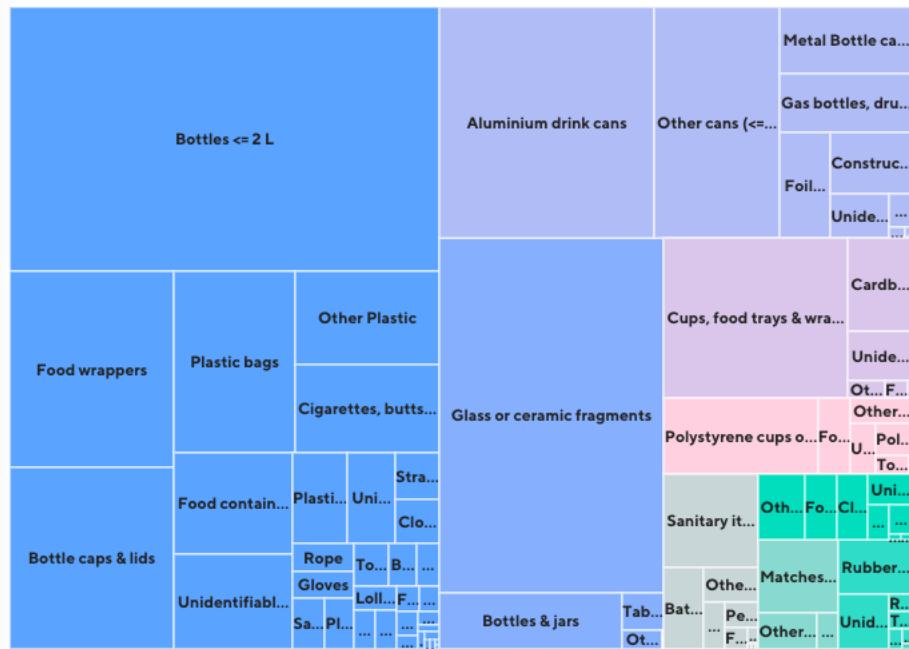

All Litter Types ▾

Total Litter By Type ?

TOTAL ITEMS

ITEMS

WEIGHT



● Plastic	47.49%
● Metal	18.78%
● Glass & Ceramic	15.92%
● Paper & Cardboard	6.91%
● Foamed Plastic	3.26%
● Other	2.87%
● Fabric & Textiles	1.76%
● Wood	1.54%
● Rubber	1.46%

Filters
[Reset Filters](#)
[Beach](#)
[Freshwater](#)
[Stormwater](#)


All Location Types ▾


Samoa, Tonga, ...
[Reset](#)


Samoa, Tonga, Wallis & Futuna, Fiji, Solomon Islands ▾

All Regions ▾

All Survey Areas ▾

[Apply Filter](#)


All Litter Types ▾

Litter Type
[Take Action](#)
LITTER TYPE - ITEMS

ITEMS

WEIGHT

#	PRODUCT	MATERIAL	TOTAL ITEMS	% OF TOTAL
1	Bottles <= 2 L	Plastic	4,250	19.46 %
2	Glass or ceramic fragments	Glass & Ceramic	3,001	13.74 %
3	Aluminium drink cans	Metal	1,860	8.52 %
4	Food wrappers	Plastic	1,205	5.52 %
5	Bottle caps & lids	Plastic	1,118	5.12 %
6	Cups, food trays & wrappers	Paper & Cardboard	1,113	5.10 %
7	Other cans (<= 4 L)	Metal	1,086	4.97 %
8	Plastic bags	Plastic	827	3.79 %
9	Other Plastic	Plastic	507	2.32 %
10	Cigarettes, butts & filters	Plastic	485	2.22 %

Data.

This dataset was collected by Citizen Scientists at an official 'Survey Area' as part of the Litter Intelligence long-term litter monitoring programme. The data are freely and openly accessible to anyone. Download the raw data, share this survey, and learn more about the data collection methodology through the links at the bottom of the page.

Litter Survey



Survey Area

USP foreshore

Survey Date

2 May 2023

Monitoring Group

POLYP(Pacific Ocean Litter Youth Project)

Lead Citizen Scientist

Laisani Waqairadovu



Overview



OFFICIAL



Visual Assessment Grade ⓘ

B

Citizen Scientists

16

Survey Hours

6.4

Audit Hours

12.8

Survey Area

100m x 9m

Surface

Mixed Substrate

Litter density

Items per 1,000m²

297



**Litter
Intelligence.**

Data. Insights. Action.

Find out more and get involved
litterintelligence.org

Appendix 3: Debrief Miro Board



