



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

About Sustainable Coastlines



PURPOSE

Reducing ocean litter together.



APPROACH

We inspire change in mindsets, behaviour, policies and practices, through community engagement and citizen science.



IMPACT

60% less coastal litter by 2030.



In numbers



1,800,016

LITRES OF LITTER
REMOVED

238,385

VOLUNTEER HOURS
(CLEAN-UPS & SURVEYS)

108,235

EDUCATION &
TRAINING HOURS

2,390

LITTER INTELLIGENCE
SURVEYS COMPLETED



10th

MOST WASTEFUL COUNTRY

URBAN WASTE PRODUCTION PER CAPITA

REFERENCE

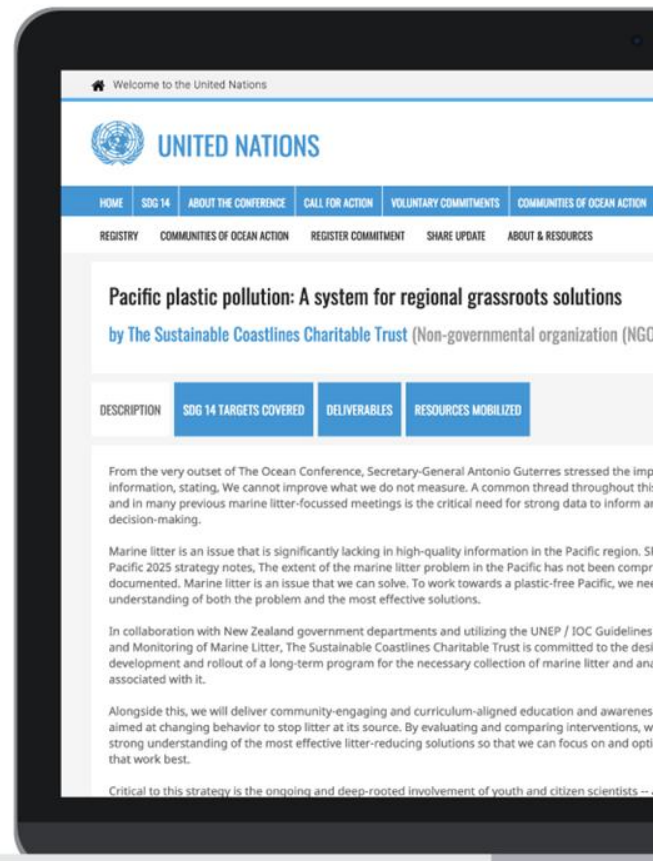
World Bank "What a Waste 2.0" Report, 2018



**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
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PROGRAMME PURPOSE

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

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

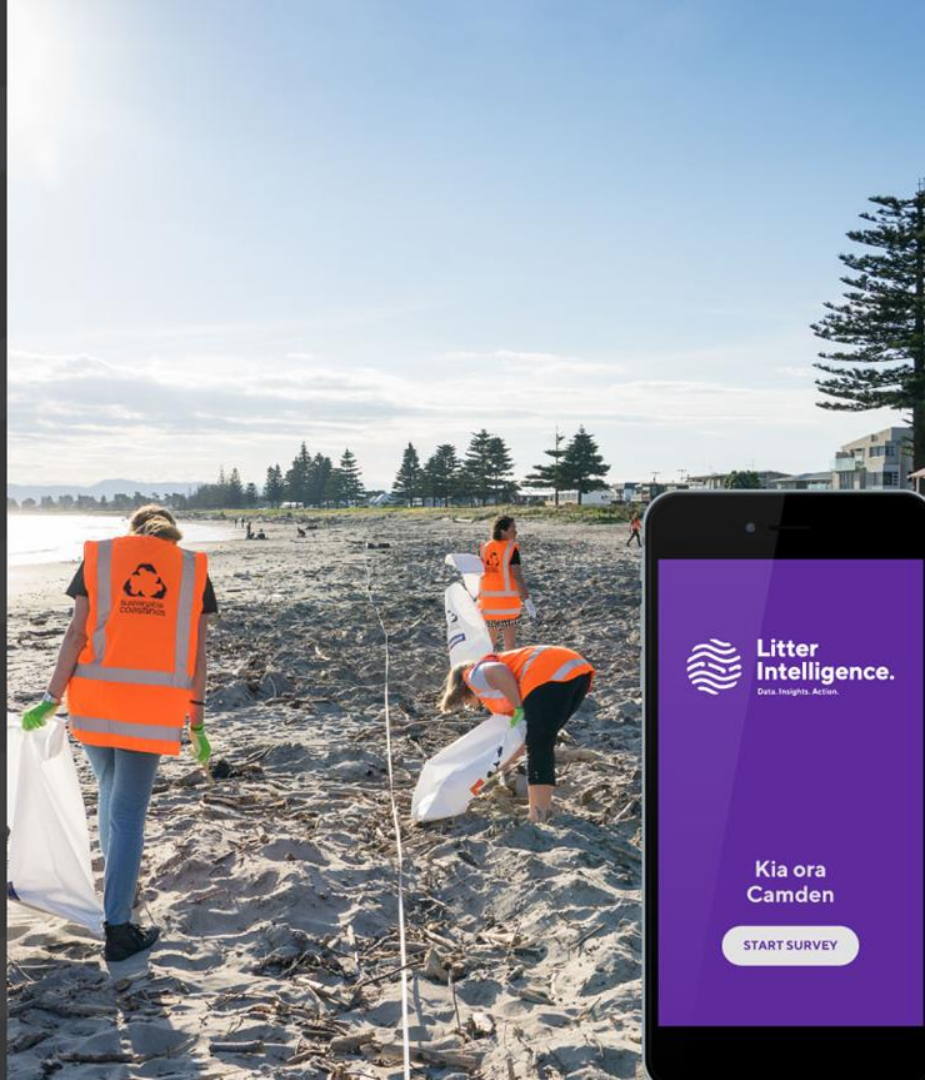
Train & support
Educators to
deliver education

Litter education
taught throughout
school system

Behaviour
change reduces
litter problem

Data.

Long-term litter monitoring by trained Citizen Scientists.



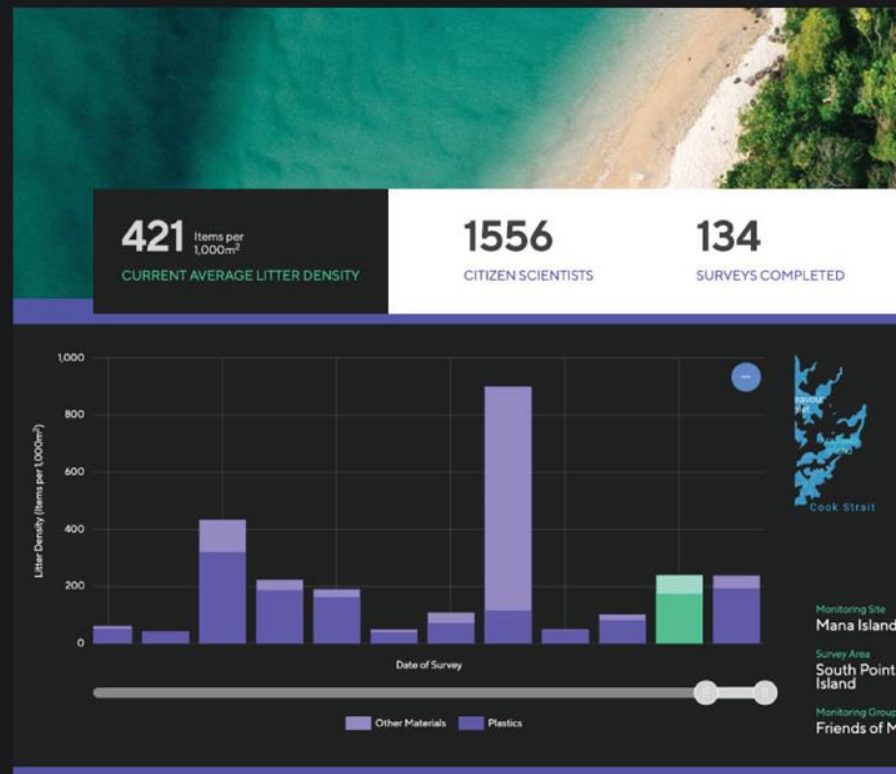
Insights.

Smart technology for data visualisation and powerful insights.



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Action.

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



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The monitoring process



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Set-up survey area

1

Survey & remove litter

2

Repeat four times/year



Audit litter

3



Government partners.



Ministry for the
Environment
Manatū Mō Te Taiao

Four-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 adaptation to UNEP/IOC methodology.
Peer review changes/adaptations to methodology.

Global recognition



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
project updates at
GPML meetings.



Presented at Pacific
Environment Forum,
2019.

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



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

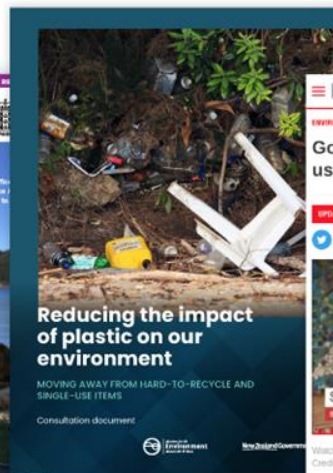
Surveys



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

Success stories

GOVERNMENT



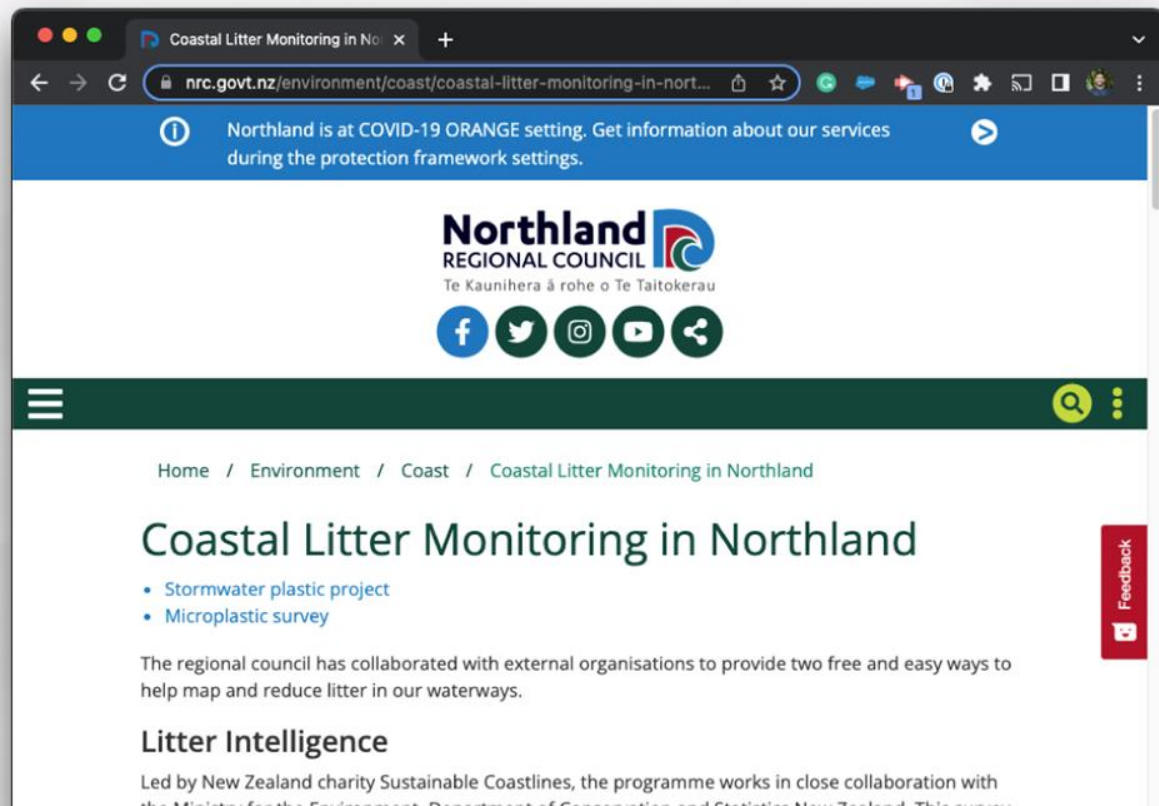
"The data set that is being provided by Sustainable Coastlines is a huge advantage to the Ministry for the Environment as a public policy tool, as it shows the areas that are most problematic and highlights to us the things that can be fixed."



HON DAVID PARKER
MINISTER FOR THE
ENVIRONMENT

Success stories

LOCAL GOVERNMENT



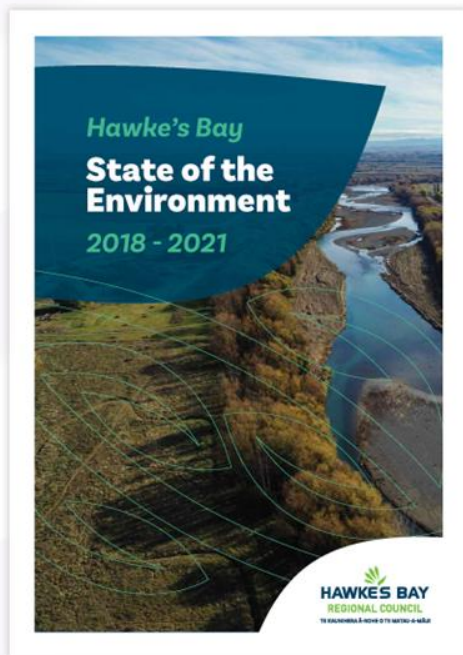
The programme works in close collaboration with the Ministry for the Environment, Department of Conservation and Statistics New Zealand. This survey takes place four times a year at various locations around Northland. The council monitoring site is in the Upper Hātea River, Whangārei Harbour.



ONLINE REPORTING PAGE
ACCESSED JULY 2022

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.

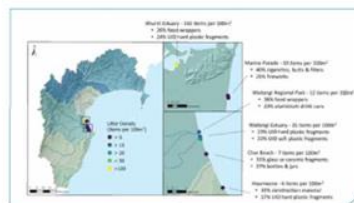


Figure 14-11 Litter density and top litter items at Litter Intelligence survey sites.

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

LOCAL GOVERNMENT



Litter
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"With numerous outfalls located around the Harbour, we not only need to be aware of what's entering our harbours through stormwater but also ensuring we're not inadvertently contributing to the deterioration of our marine and coastal environments" said Melidonis, referring also to over 700 litter items recorded in an area only the length of a rugby field, during quarterly Litter Intelligence surveys at 11 sites around Te Whanganui-a-Tara coastline.



PRESS RELEASE
JUNE 2022

Success stories

GOVERNMENT



HE WAKA EKE NOA TOWARDS A BETTER FUTURE, TOGETHER

NEW ZEALAND'S PROGRESS TOWARDS THE SDGs – 2019

14 LIFE
BELOW WATER



“Reliable, timely, comprehensive, and consistent data is critical for measuring progress towards, and ultimately achieving the United Nations Sustainable Development Goals.”

SUSTAINABILITY SCIENCE (2020)

FRAISL, D., CAMPBELL, J., SEE, L. ET AL.

Sustainability Science
<https://doi.org/10.1007/s11625-020-00833-7>



ORIGINAL ARTICLE



Mapping citizen science contributions to the UN sustainable development goals

Dilek Fraisl^{1,2} · Jillian Campbell³ · Linda See¹ · Uta Wehn⁴ · Jessica Wardlaw⁵ · Margaret Gold⁶ · Inian Moorthy¹ · Rosa Arias⁷ · Jaume Piera⁸ · Jessica L. Oliver^{9,10} · Joan Masó¹¹ · Marianne Penker² · Steffen Fritz¹

Received: 4 November 2019 / Accepted: 14 June 2020
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Abstract

The UN Sustainable Development Goals (SDGs) are a vision for achieving a sustainable future. Reliable, timely, comprehensive, and consistent data are critical for measuring progress towards, and ultimately achieving, the SDGs. Data from citizen science represent one new source of data that could be used for SDG reporting and monitoring. However, information is still lacking regarding the current and potential contributions of citizen science to the SDG indicator framework. Through a systematic review of the metadata and work plans of the 244 SDG indicators, as well as the identification of past and ongoing citizen science initiatives that could directly or indirectly provide data for these indicators, this paper presents an overview of where citizen science is already contributing and could contribute data to the SDG indicator framework. The results demonstrate that citizen science is “already contributing” to the monitoring of 5 SDG indicators, and that citizen science “could

Success stories

BUSINESS



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Litter Intelligence - 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

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.

Explore this action further

Read: 'Shooters urged to adopt environmental-friendly ammunition'
<https://www.nz.co.nz/news/national/319799/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, Councilors, 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/>

Looking forward

PROGRAMME DEVELOPMENT



Litter
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Waste flows in waterways and coastal marine environments

This indicator will show the amount of waste discharged into waterways and coastal areas around New Zealand each year. The term 'waste' includes chemicals, sewage, and solid waste.

This indicator is still to be developed.



Development of official 'Tier 1' indicator for litter.
Reporting on Wellbeing Indicators.

Train the Trainer programme.

Better online delivery tools.

Enhanced Learning Management System.

Increased cultural and language accessibility.

Further Pacific piloting and rollout.

Litter action workshops.

Terrestrial litter and microplastics data integration.



Beach



Stormwater



Freshwater



Land



International



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 ▾

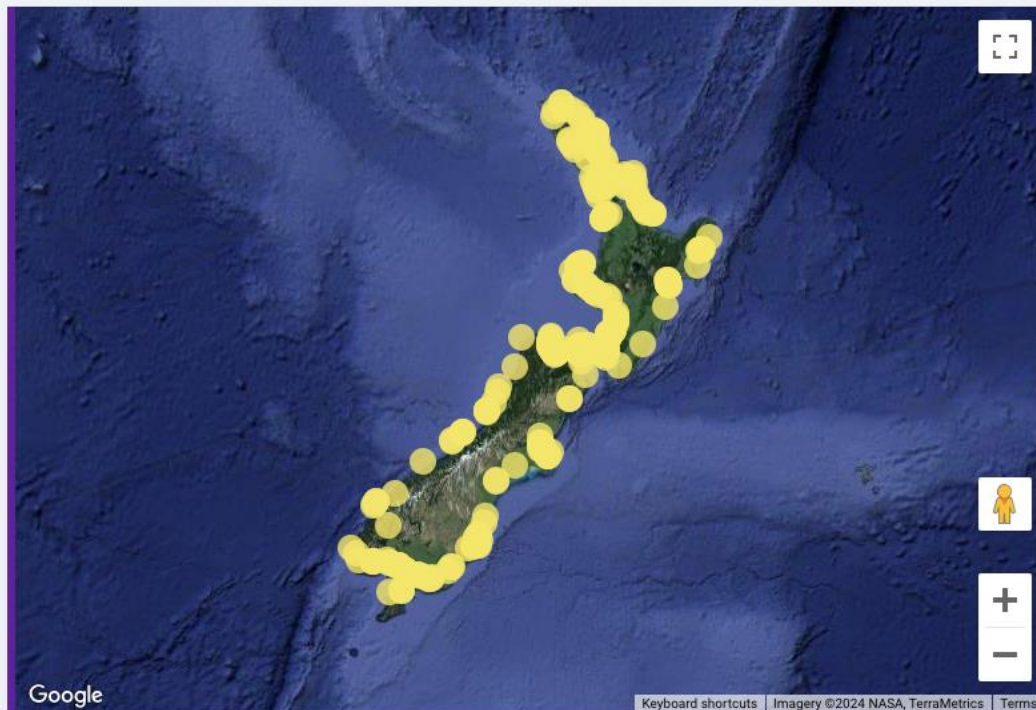
SET 1

All Location Types

New Zealand

All Litter Types

All Time

Survey Locations ?**LITTER DENSITY**
Items Per 1000m2

Low 0

High 10,818

Average 309

SURVEY AREAS**352****SURVEYS COMPLETED****2,007****VOLUNTEER HOURS****25,244**

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

566,312

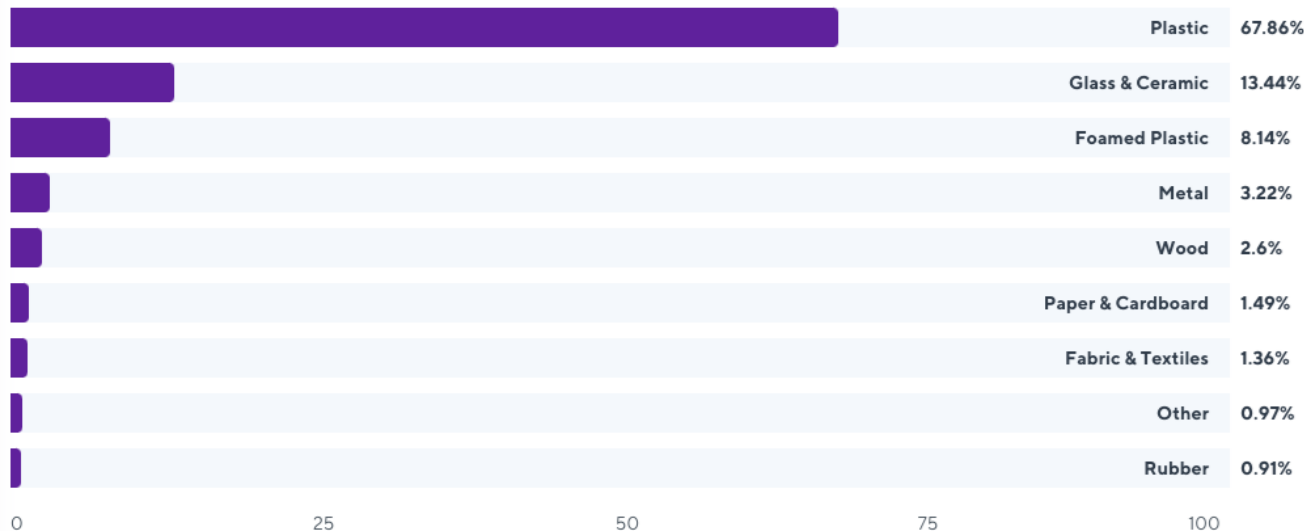
TOTAL WEIGHT (KG)

12,913.51

PERCENTAGE OF TOTAL ITEMS

ITEMS

WEIGHT



Percentage (%)

Reset Filters

Stormwater

All Location Types

New Zealand

Reset

New Zealand

All Regions

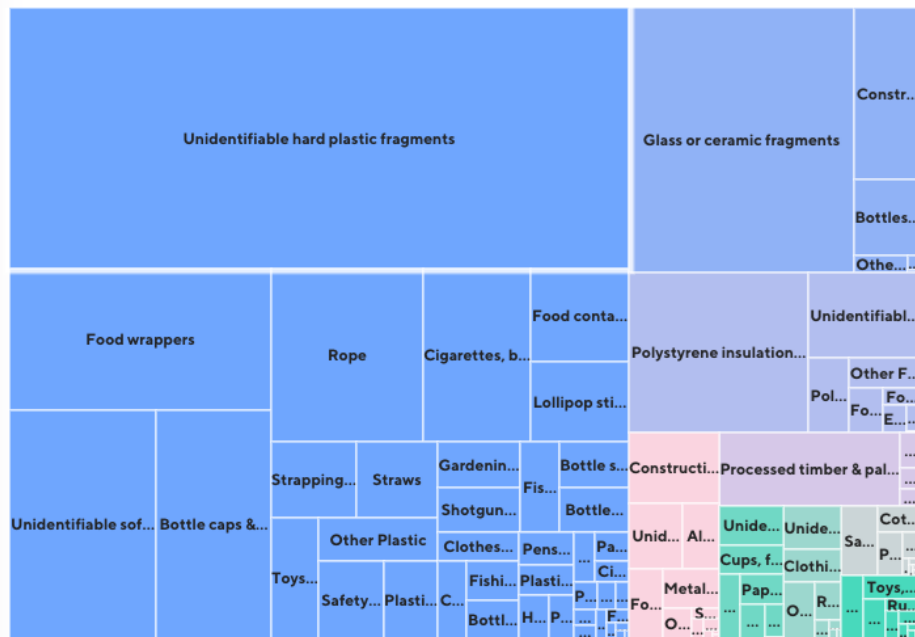
All Survey Areas

Apply Filter

All Litter Types

All Time

TOTAL ITEMS



ITEMS

WEIGHT

Plastic	67.86%
Glass & Ceramic	13.44%
Foamed Plastic	8.14%
Metal	3.22%
Wood	2.6%
Paper & Cardboard	1.49%
Fabric & Textiles	1.36%
Other	0.97%
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 ▾



All Time ▾

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

ITEMS

WEIGHT

#	PRODUCT	MATERIAL	TOTAL ITEMS	% OF TOTAL
1	Unidentifiable hard plastic fragments	Plastic	158,652	28.01 %
2	Glass or ceramic fragments	Glass & Ceramic	58,490	10.33 %
3	Food wrappers	Plastic	36,229	6.40 %
4	Unidentifiable soft plastic fragments	Plastic	32,970	5.82 %
5	Polystyrene insulation or packaging	Foamed Plastic	28,158	4.97 %
6	Bottle caps & lids	Plastic	26,047	4.60 %
7	Rope	Plastic	25,707	4.54 %
8	Cigarettes, butts & filters	Plastic	18,184	3.21 %
9	Processed timber & pallet crates	Wood	13,097	2.31 %
10	Construction material	Glass & Ceramic	11,440	2.02 %



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Find out more and get involved
litterintelligence.org