SWAP Marine Litter Training - Samoa
Activity report Sustainable coastlines – June 2023
SWAP MARINE LITTER TRAINING – SAMOA

ACTIVITY REPORT
SUSTAINABLE COASTLINES
JUNE 2023
## Contents

I. **Introduction** ......................................................................................................................................................... 2  
II. **Site visit and survey area selection** ..................................................................................................................... 3  
   2.1. Vailuutai Agenda ................................................................................................................................................. 3  
   2.2. Lalomanu Agenda ................................................................................................................................................ 3  
III. **Training Day 1 – LI Citizen science workshop - Lalomanu Beach, Upolu, Samoa** ............................................. 4  
   3.1. Agenda ............................................................................................................................................................... 4  
   3.2. Attendees ............................................................................................................................................................ 5  
   3.3. Activities ............................................................................................................................................................ 6  
IV. **Training Day 2 – Litter Intelligence Citizen science workshop - Vailuutai, Upolu, Samoa** .................................. 9  
   4.1. Agenda ............................................................................................................................................................... 9  
   4.2. Attendees ............................................................................................................................................................ 10  
   4.3. Activities ............................................................................................................................................................ 11  
   4.4. Results Litter Survey in Vailuutai, Upolu, Samoa ................................................................................................. 13  
V. **Training Day 3 – Litter Intelligence Citizen science workshop - Sheraton Waterfront (Apia), Upolu, Samoa** .................................................................................................................................................. 14  
   5.1. Agenda ............................................................................................................................................................... 14  
   5.2. Attendees ............................................................................................................................................................ 15  
   5.3. Activities ............................................................................................................................................................ 15  
   5.4. Results Litter Survey at Sheraton Waterfront (Apia), Upolu, Samoa ................................................................. 17  
VI. **De-briefing meeting** ............................................................................................................................................... 19  
Appendices .................................................................................................................................................................... 20
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

<table>
<thead>
<tr>
<th>TIME</th>
<th>TOPIC</th>
<th>RESOURCE PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00pm – 2:30pm</td>
<td>Picked up from airport and travel to Vailuutai</td>
<td>Mr Ben Knight and Miss Briar Inwood Sustainable Coastlines</td>
</tr>
<tr>
<td>2:30pm - 3:00pm</td>
<td>Scout site and determine location for survey area</td>
<td>Mr Ben Knight and Miss Briar Inwood Sustainable Coastlines</td>
</tr>
<tr>
<td>3:00pm - 3:00pm</td>
<td>Depart Vailuutai and travel to Apia</td>
<td>Mr Ben Knight and Miss Briar Inwood Sustainable Coastlines</td>
</tr>
</tbody>
</table>

2.2. Lalomanu Agenda

<table>
<thead>
<tr>
<th>TIME</th>
<th>TOPIC</th>
<th>RESOURCE PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30am – 9:45am</td>
<td>Picked up from Le Manumea and travel to Lalomanu</td>
<td>Mr Darren Bartley and Mr Fualaga Pemita - MNRE Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines</td>
</tr>
<tr>
<td>9:45am - 10:30am</td>
<td>Scout site and determine location for survey area</td>
<td>Mr Ben Knight and Miss Briar Inwood - Sustainable Coastlines</td>
</tr>
</tbody>
</table>
### III. Training Day 1 – LI Citizen science workshop - Lalomanu Beach, Upolu, Samoa

#### 3.1. Agenda

<table>
<thead>
<tr>
<th>Time (Samoa time)</th>
<th>Topic</th>
<th>Resource Person</th>
</tr>
</thead>
</table>
| 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 |
| 12:30pm - 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 Pemita - 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.
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:

<table>
<thead>
<tr>
<th>Presentation on the Marine Litter Problem</th>
<th>Analysis of the beach selected for the Marine Litter Pilot Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>

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

4.1. Agenda

<table>
<thead>
<tr>
<th>Time (Samoa time)</th>
<th>Topic</th>
<th>Resource Person</th>
</tr>
</thead>
</table>
| 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 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 | 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 |
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)](image-url)
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:

<table>
<thead>
<tr>
<th>Presentation on the Marine Litter Problem</th>
<th>Analysis of the beach selected for the Marine Litter Pilot Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Presentation on the Marine Litter Problem" /></td>
<td><img src="image2" alt="Analysis of the beach selected for the Marine Litter Pilot Project" /></td>
</tr>
<tr>
<td><img src="image3" alt="Setting up of the litter audit and survey area" /></td>
<td><img src="image4" alt="Setting up of the litter audit and survey area" /></td>
</tr>
<tr>
<td>Picking up of litter from the survey area</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td></td>
</tr>
<tr>
<td><img src="image1.png" alt="Image of litter picking" /></td>
<td></td>
</tr>
<tr>
<td><img src="image2.png" alt="Image of litter picking" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Litter audit</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Image of litter audit" /></td>
</tr>
<tr>
<td><img src="image4.png" alt="Image of litter audit" /></td>
</tr>
</tbody>
</table>
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 1,000m$^2$.
## V. Training Day 3 – Litter Intelligence Citizen science workshop - Sheraton Waterfront (Apia), Upolu, Samoa

### 5.1. Agenda

<table>
<thead>
<tr>
<th>Time (Samoa Time)</th>
<th>Topic</th>
<th>Resource Person</th>
</tr>
</thead>
</table>
| 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 Pemita - 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 Pemita - 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 Pemita - 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:

<table>
<thead>
<tr>
<th>Analysis of the beach selected for the Marine Litter Pilot Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Beach Analysis" /></td>
</tr>
<tr>
<td><img src="image2.png" alt="Beach Analysis" /></td>
</tr>
<tr>
<td>Setting up of the litter audit and survey area</td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Picking up of litter from the survey area</th>
</tr>
</thead>
</table>

- Setting up of the litter audit and survey area:
  - [Image 1x-21 to 327x69]
  -
  -
  -

- Picking up of litter from the survey area:
  -
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: 12.86 Kilograms.
- Litter density of the site: 579 Items per 1,000m².
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.
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 Imo, 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 no all participants could understand and were to 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 winder 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

<table>
<thead>
<tr>
<th>Workshop 1 - Lalomau</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Name</strong></td>
<td><strong>Family Name</strong></td>
</tr>
<tr>
<td>Faatamalii</td>
<td>Meredith</td>
</tr>
<tr>
<td>Venus</td>
<td>Paplii</td>
</tr>
<tr>
<td>Darren</td>
<td>Bartley</td>
</tr>
<tr>
<td>Fualaga</td>
<td>Pemita</td>
</tr>
<tr>
<td>Maseiga</td>
<td>Faafeta Pete</td>
</tr>
<tr>
<td>Konefesiuti</td>
<td>Ropati</td>
</tr>
<tr>
<td>Laionesa</td>
<td>Tuese</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workshop 2 - Vailuutai</th>
<th>21 participants total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Name</strong></td>
<td><strong>Family Name</strong></td>
</tr>
<tr>
<td>Faatamalii</td>
<td>Meredith</td>
</tr>
<tr>
<td>Venus</td>
<td>Paplii</td>
</tr>
<tr>
<td>Darren</td>
<td>Bartley</td>
</tr>
<tr>
<td>Fualaga</td>
<td>Pemita</td>
</tr>
<tr>
<td>Poinsettia</td>
<td>Mavaega</td>
</tr>
<tr>
<td>Kimeama</td>
<td>Falefia</td>
</tr>
<tr>
<td>Beauty</td>
<td>Semi Pualilo</td>
</tr>
<tr>
<td>Sipaia</td>
<td>Amerika</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workshop 3 - Apia Harbor SPREP</th>
<th>7 participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Name</strong></td>
<td><strong>Family Name</strong></td>
</tr>
<tr>
<td>Fualaga</td>
<td>Pemita</td>
</tr>
<tr>
<td>Memoree</td>
<td>Imo</td>
</tr>
<tr>
<td>Renee</td>
<td>Kamu</td>
</tr>
<tr>
<td>Hannah</td>
<td>Hendriks</td>
</tr>
</tbody>
</table>
Appendix 2: PPT Presentations

1. Lead Citizen Scientist Training Workshop Slides 2023 SWAP pilot.pptx
2. LI intro presentation for SWAP Pilot 2023.pptx
Welcome & Introductions

Get to know everyone. Your name, organisation, and what motivates you to be here?
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
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
Inspire and inform better decisions for a world without litter.
Government partners

Ministry for the Environment

Stats NZ

Department of Conservation

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

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

Co-design of localised adaptation 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

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
“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.”
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
Equipment Overview

Become familiar with the equipment which makes up the Litter Intelligence kit.
Health & Safety equipment
Survey equipment
Audit equipment
Litter Categories
FOR REFERENCE DURING AUDIT

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL2414</td>
<td>Bacterial habitat wheels</td>
</tr>
<tr>
<td>PL13</td>
<td>Buckets, crates &amp; trays</td>
</tr>
<tr>
<td>PL01</td>
<td>Bottle caps &amp; lids</td>
</tr>
<tr>
<td>PL0101</td>
<td>Bottle neck rings</td>
</tr>
<tr>
<td>PL0102</td>
<td>Bottle seals &amp; tabs</td>
</tr>
<tr>
<td>PL02</td>
<td>Bottles &lt; 2 L</td>
</tr>
<tr>
<td>PL03</td>
<td>Bottles, drums, jerrycans &amp; buckets &gt; 2 L</td>
</tr>
<tr>
<td>PL2406</td>
<td>Cable ties &amp; zip ties</td>
</tr>
<tr>
<td>PL10</td>
<td>Cigarette lighters</td>
</tr>
<tr>
<td>PL11</td>
<td>Cigarettes, butts &amp; filters</td>
</tr>
<tr>
<td>PL121</td>
<td>Cosmetics &amp; medical packaging</td>
</tr>
<tr>
<td>PL2403</td>
<td>Clothes pegs</td>
</tr>
<tr>
<td>PL05</td>
<td>Drink package rings</td>
</tr>
<tr>
<td>PL22</td>
<td>Fibreglass fragments</td>
</tr>
<tr>
<td>PL17</td>
<td>Fishing gear</td>
</tr>
<tr>
<td>PL18</td>
<td>Fishing line</td>
</tr>
<tr>
<td>PL20</td>
<td>Fishing net</td>
</tr>
</tbody>
</table>

Health & Safety
Important instructions for some litter categories. Look for the icons below in the HS& column and follow instructions during your audit.

<table>
<thead>
<tr>
<th>Code</th>
<th>Plastic</th>
<th>Notes &amp; Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL2414</td>
<td>Bacterial habitat wheels</td>
<td>Includes fish bins</td>
</tr>
<tr>
<td>PL13</td>
<td>Buckets, crates &amp; trays</td>
<td>Only trained leaders to touch</td>
</tr>
<tr>
<td>PL01</td>
<td>Bottle caps &amp; lids</td>
<td>Only adults to touch</td>
</tr>
<tr>
<td>PL0101</td>
<td>Bottle neck rings</td>
<td>Milk bottle rings</td>
</tr>
<tr>
<td>PL0102</td>
<td>Bottle seals &amp; tabs</td>
<td></td>
</tr>
<tr>
<td>PL02</td>
<td>Bottles &lt; 2 L</td>
<td></td>
</tr>
<tr>
<td>PL03</td>
<td>Bottles, drums, jerrycans &amp; buckets &gt; 2 L</td>
<td></td>
</tr>
<tr>
<td>PL2406</td>
<td>Cable ties &amp; zip ties</td>
<td></td>
</tr>
<tr>
<td>PL10</td>
<td>Cigarette lighters</td>
<td>Vapes, vaping devices</td>
</tr>
<tr>
<td>PL11</td>
<td>Cigarettes, butts &amp; filters</td>
<td>Butts, filters</td>
</tr>
<tr>
<td>PL121</td>
<td>Cosmetics &amp; medical packaging</td>
<td>Inhalers, cosmetics, pill packets, condom wrappers, Chapstick. Excludes syringes</td>
</tr>
<tr>
<td>PL2403</td>
<td>Clothes pegs</td>
<td></td>
</tr>
<tr>
<td>PL05</td>
<td>Drink package rings</td>
<td>Six-pack rings, ring carriers</td>
</tr>
<tr>
<td>PL22</td>
<td>Fibreglass fragments</td>
<td></td>
</tr>
<tr>
<td>PL17</td>
<td>Fishing gear</td>
<td>Plastic lures, traps &amp; pots, glow sticks, knife handles, shriners, burley pots, bakery pots, light sticks, syringe sticks</td>
</tr>
<tr>
<td>PL18</td>
<td>Fishing line</td>
<td>Monofilament line &amp; braid</td>
</tr>
<tr>
<td>PL20</td>
<td>Fishing net</td>
<td></td>
</tr>
</tbody>
</table>

Audit Data
LITTER SURVEY ITEM & WEIGHT DATA

How to fill this in
1. 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.
2. Only count & weigh items above 5mm in size. Please record all weights in grams.
3. 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
4. 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
- End Time
- # of Auditors

Plastic pellet assessment
A = Not seen along survey area, B = Seen along survey area, C = 10-100 seen along survey area, D = More than 100 seen along survey area
Open your web browser on your phone or computer and go to app.litterintelligence.org and bookmark this web address.
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

1. Set-up survey area
2. Survey & remove litter
3. Audit litter

Repeat four times/year

- 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:
- 100 metres long
- 20 metres wide, maximum
- Start point is centered in aggregation zone
- Record start and end point GPS coordinates (Green & Red pins)
Identify litter aggregation zone
Mark start point of survey
Measure 10m above and below
Measure out the survey area
Mark out at 50m and 100m
Take three photos
Photo 1: along the survey area
Photo 2: towards the water
Photo 3: towards the beach head
Beach visual assessments

A  No litter present

B  Predominantly free with some minor instances
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.
Survey set-up complete
Have surveyors form into a muster line
Complete two full sweeps of the beach
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/
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
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
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.
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.
Health & Safety

Understand the processes & procedures to conduct a litter survey and audit safely.
## How to assess risk

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

<table>
<thead>
<tr>
<th></th>
<th>Very unlikely to happen</th>
<th>Unlikely to happen</th>
<th>Possibly could happen</th>
<th>Likely to happen</th>
<th>Very likely to happen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catastrophic (Fatal)</strong></td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>Critical</td>
<td>Critical</td>
</tr>
<tr>
<td><strong>Major (Disability)</strong></td>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>Critical</td>
</tr>
<tr>
<td><strong>Moderate (Hospitalization)</strong></td>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td><strong>Minor (First Aid)</strong></td>
<td>Very Low</td>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Superficial (No treatment)</strong></td>
<td>Very Low</td>
<td>Very Low</td>
<td>Low</td>
<td>Low</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
## How you will control the hazard – E or M

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

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

www.litterintelligence.org
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
Do not touch!
Extremely hazardous material.

- Exterior cladding
- Corrugated roofing, guttering and spouting
- Decramastic tiles
- Piping
- Insulation and lagging
- Imitation brick cladding
Asbestos Safety

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.
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

Do not fill above this line
Let’s go to the beach!
Litter Audit

Become familiar with the audit methodology, the Litter Identification Guide and common unusual litter items (+ exercise).
Sort by material then by category
Use sieve to exclude items smaller than 5mm
Count and weigh items in each category, zeroing the scales each time.
Record on paper and in the app
# Audit Data

**LITTER SURVEY ITEM & WEIGHT DATA**

## How to fill this in

1. 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.
2. Only count & weigh items above 5mm in size. Please record all weights in grams.
3. In the "H/L" column, record how "confident" you are that the weight is correct; it can be inaccurate if litter is wet or dirty. H = High, L = Low.
4. When you have completed your audit, enter your data as soon as possible at [app.litterintelligence.org](http://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**
- **End Time**
- **# of Auditors**

## Plastic pellet assessment

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>None seen along survey area</td>
</tr>
<tr>
<td>B</td>
<td>1-10 seen along survey area</td>
</tr>
<tr>
<td>C</td>
<td>&gt;10-100 seen along survey area</td>
</tr>
<tr>
<td>D</td>
<td>More than 100 seen along survey area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#</th>
<th>Code</th>
<th>Material</th>
<th>Category name</th>
<th>Count</th>
<th>Weight (g)</th>
<th>H/L</th>
<th>In App</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>G</td>
<td>Plastic</td>
<td>Unidentifiable hard plastic fragments</td>
<td>32</td>
<td>15</td>
<td>H</td>
<td></td>
</tr>
</tbody>
</table>
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)

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

**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)

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

Bottle tops/lids, neck rings, & seal tabs
All materials
Unidentifiable fragments
Plastic Food wrappers
All materials ‘Other’ category
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/
Review & Submit

Understand the post-survey & audit process.
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.
● 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.
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.
Questions & Discussion

Understand any gaps in knowledge from our audience.
Thanks!
What we do

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

Ministry for the Environment
Manatū Mo Te Taiao

Stats NZ
Tatauranga Aotearoa

Department of Conservation
Te Papa Atawhai

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

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

Co-design of localised adaptation to UNEP/IOC methodology.
Peer review of changes / adaptations to methodology.
Global collaboration

- 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.
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
Long-term litter monitoring by trained Citizen Scientists.
Insights.
Smart technology for data visualisation and powerful insights.
‘Action Stories’ and schools Education Programme to solve the issue long-term.
The methodology


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

1. Set-up survey area
2. Survey & remove litter
3. Audit litter
4. Repeat four times/year
Data quality

Quality Assurance
Quality Controls
Data Dictionary
Open Data Policy
Data Governance Group
Privacy & Security

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 instil 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**
- **Citizen Scientist**
  - Can assist with litter survey and audit processes.
  - Can submit ‘Ad Hoc’ litter surveys to the Litter Intelligence database.

- **Lead**
  - 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.

- **Trainer**
  - 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.

- **Trainer Certifier**
  - Attends ‘Certifier’ workshop.
  - Organises and runs ‘Train the Trainer’ workshops and certifies Trainers.
  - Is a ‘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**
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

*Citizen Scientists with no training can continue to submit ‘Ad Hoc’ litter surveys.
“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
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.
Glass Protectors: From Foam-Plastic to Corktastic

Submitted by: Sustainable Coastlines

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

Kiwi company Allterra 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 local beaches. After conducting Allterra, and notifying them about the issue, the company recognized how easy it was for the pads to reach waterways through the stormwater drain right next to their workshop. Allterra 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/blackwaka/photos/a.326464132207342/751436125494920/

Solving the Mystery of the Shotgun Wads

Submitted by: Sustainable Coastlines

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 shotgun-shaped plastic shotgun wads washed up on local beaches. With the help of Taranaki District Council, Taranaki Fish & Game Council, MetOcean Solutions and Project Hotspur—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 Mangapai River. A computer software model confirmed that plastic wads would be carried down the Mangapai River, into the Waitara River, and out to sea before being deposited along the coast north and south of New Plymouth at sites noted by the students. The school’s discovery has encouraged Inglewood Rialto and Gun Club members to phase out plastic wads and make the switch to biodegradable ones.

Explore this action further:
- Shouters urged to adopt environmentally friendly ammunition.
- Taranaki Conservationists cleaning the beach of shotgun wads.
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 collaborated with local artists to create a mural for the local community. The project involved students from various schools in the area, including the Waitohi Youth Centre.

The students worked together to paint a mural on a local wall, using vibrant colours and creative designs. The mural was unveiled during a community event, and it was well-received by the local residents.

The project was a success, and it helped to raise awareness of the importance of keeping the environment clean. The students were proud of their work, and they felt a sense of accomplishment.

The project also had a positive impact on the community. The mural added a touch of beauty to the area, making it a more pleasant place to be.

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 an important message. Their newfound skills were evident after securing the lead environmental story in a regional paper, the Gisborne Herald, which is read by approximately 20,000 people each week.

The story highlighted the importance of reducing single-use plastics and encouraging people to make environmentally friendly choices.

The students' efforts were praised by the editor of the Gisborne Herald, who noted that the story was well-written and well-researched. The students were also invited to speak at a local environmental conference, where they shared their experiences and encouraged others to get involved in environmental activism.
<table>
<thead>
<tr>
<th></th>
<th>PRODUCT</th>
<th>MATERIAL</th>
<th>TOTAL ITEMS</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unidentifiable hard plastic fragments</td>
<td>Plastic</td>
<td>120,091</td>
<td>28.13%</td>
</tr>
<tr>
<td>2</td>
<td>Glass or ceramic fragments</td>
<td>Glass &amp; Ceramic</td>
<td>42,961</td>
<td>10.06%</td>
</tr>
<tr>
<td>3</td>
<td>Food wrappers</td>
<td>Plastic</td>
<td>29,333</td>
<td>6.87%</td>
</tr>
<tr>
<td>4</td>
<td>Unidentifiable soft plastic fragments</td>
<td>Plastic</td>
<td>22,801</td>
<td>5.34%</td>
</tr>
<tr>
<td>5</td>
<td>Polystyrene insulation or packaging</td>
<td>Foamed Plastic</td>
<td>20,466</td>
<td>4.79%</td>
</tr>
<tr>
<td>6</td>
<td>Rope</td>
<td>Plastic</td>
<td>19,581</td>
<td>4.59%</td>
</tr>
<tr>
<td>7</td>
<td>Bottle caps &amp; lids</td>
<td>Plastic</td>
<td>19,395</td>
<td>4.54%</td>
</tr>
<tr>
<td>8</td>
<td>Cigarettes, butts &amp; filters</td>
<td>Plastic</td>
<td>16,007</td>
<td>3.75%</td>
</tr>
<tr>
<td>9</td>
<td>Processed timber &amp; pallet crates</td>
<td>Wood</td>
<td>10,214</td>
<td>2.39%</td>
</tr>
<tr>
<td>10</td>
<td>Unidentifiable foamed plastic fragments</td>
<td>Foamed Plastic</td>
<td>7,651</td>
<td>1.79%</td>
</tr>
</tbody>
</table>
Materials & Products

TOTAL ITEM COUNT:
21,837

TOTAL WEIGHT (KG):
1,714.44

PERCENTAGE OF TOTAL ITEMS:

- 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%
### Total Litter By Type

<table>
<thead>
<tr>
<th>Litter Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>47.49%</td>
</tr>
<tr>
<td>Metal</td>
<td>18.78%</td>
</tr>
<tr>
<td>Glass &amp; Ceramic</td>
<td>15.92%</td>
</tr>
<tr>
<td>Paper &amp; Cardboard</td>
<td>6.91%</td>
</tr>
<tr>
<td>Foamed Plastic</td>
<td>3.26%</td>
</tr>
<tr>
<td>Other Plastic</td>
<td>2.87%</td>
</tr>
<tr>
<td>Fabric &amp; Textiles</td>
<td>1.76%</td>
</tr>
<tr>
<td>Wood</td>
<td>1.54%</td>
</tr>
<tr>
<td>Rubber</td>
<td>1.46%</td>
</tr>
</tbody>
</table>

**TOTAL ITEMS**

- **Plastic**
  - Bottles <= 2 L
  - Aluminium drink cans
  - Other cans (<...)
  - Other plastics
  - Food wrappers
  - Plastic bags
  - Other plastic
  - Food containers
  - Plastic straws
  - Plastic bottles & jars
- **Metal**
  - Metal bottle caps & lids
  - Other metal
  - Metal straws
- **Glass & Ceramic**
  - Glass & ceramic fragments
  - Other glass & ceramic
  - Other bottles & jars
  - Unidentified plastic
  - Unidentified metal
- **Paper & Cardboard**
  - Unidentified paper & cardboard
- **Foamed Plastic**
  - Unidentified foamed plastic
- **Other Plastic**
  - Unidentified other plastic
- **Other**
  - Unidentified other
- **Fabric & Textiles**
  - Unidentified fabric & textiles
- **Wood**
  - Unidentified wood
- **Rubber**
  - Unidentified rubber
## Litter Type - Items

<table>
<thead>
<tr>
<th>Rank</th>
<th>Product</th>
<th>Material</th>
<th>Total Items</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bottles &lt;= 2 L</td>
<td>Plastic</td>
<td>4,250</td>
<td>19.46%</td>
</tr>
<tr>
<td>2</td>
<td>Glass or ceramic fragments</td>
<td>Glass &amp; Ceramic</td>
<td>3,001</td>
<td>13.74%</td>
</tr>
<tr>
<td>3</td>
<td>Aluminium drink cans</td>
<td>Metal</td>
<td>1,860</td>
<td>8.52%</td>
</tr>
<tr>
<td>4</td>
<td>Food wrappers</td>
<td>Plastic</td>
<td>1,205</td>
<td>5.52%</td>
</tr>
<tr>
<td>5</td>
<td>Bottle caps &amp; lids</td>
<td>Plastic</td>
<td>1,118</td>
<td>5.12%</td>
</tr>
<tr>
<td>6</td>
<td>Cups, food trays &amp; wrappers</td>
<td>Paper &amp; Cardboard</td>
<td>1,113</td>
<td>5.10%</td>
</tr>
<tr>
<td>7</td>
<td>Other cans (&lt;= 4 L)</td>
<td>Metal</td>
<td>1,086</td>
<td>4.97%</td>
</tr>
<tr>
<td>8</td>
<td>Plastic bags</td>
<td>Plastic</td>
<td>827</td>
<td>3.79%</td>
</tr>
<tr>
<td>9</td>
<td>Other Plastic</td>
<td>Plastic</td>
<td>507</td>
<td>2.32%</td>
</tr>
<tr>
<td>10</td>
<td>Cigarettes, butts &amp; filters</td>
<td>Plastic</td>
<td>485</td>
<td>2.22%</td>
</tr>
</tbody>
</table>
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**

- **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**: 297 items per 1,000 m²
Find out more and get involved!
litterintelligence.org
Appendix 3: Debrief Miro Board

- **Highlights & successes**
  - What worked?
    - Plastic free catering (Julie)
    - We had good turnouts for both of the community trainings.
    - The youth group (Vailuatu) seemed highly engaged.
    - Both communities enjoyed/liked the exercise/activity (Tam)
    - Tam is planning to do another presentation before the 2nd survey/cleanup
    - It was good to have a highly engaged govt staff/team
    - Range of participants
    - Both groups are looking forward to the next survey/cleanup activity (Tam)
    - None of the team got sick/ill

- **Notes**
  - We kept to time despite arriving later than planned for the first workshop
  - Tam gathered contact details for leads before workshop to set up logins
  - The volunteers were fast learners in regard to the survey set up and litter sorting/audit
  - Setoa translating during workshops
  - scouting sites
  - Felt welcome in the communities
  - Both communities enjoyed/liked the exercise/activity (Tam)

- **Debrief Miro Board**
Improvement Opportunities
What held us back/didn’t work?

- The tide timings weren’t ideal
- Weather was a bit too hot
- Ongoing tech issues with the app
- Gloves and high vis weren’t the right sizes - too many small ones and not enough large and x-large
- Not having contact details for volunteers so needed to create logins on the day
- The cleanup sacks weren’t very durable and some had to be thrown away after a single use
- Confusion around pickup times meant we arrived late to the first workshop
- Not all of the gloves were returned after each workshop so we are now missing some
- We didn’t receive any formal feedback from volunteers
- Budget/funding delays delayed the planning for local govt staff (Tam)
- The Savaii trainings didn’t go ahead due to funding/payment issues
- Not all participants had email/phone to contact & set up login
- Rushed pack out at end of first workshop
Quick fixes
How could we do things differently?

Include more of the why we collect data and why waste/litter is bad in our workshop materials.

Consider and trial other rubbish sack options.

Include in phase 2 provision in budget for teaching/training resources to be provided in each country's home language.

Having a LI kit device (tablet) for entering data.

Bring larger sizes of high-viz and gloves.

Planning the dates that we do in-country trainings based on a week where the tides are low in the middle of the day in future.

Aim to be at the beach earlier in the day to avoid midday heat.

Ensure there is enough time at the end of workshop to collect all the gear.

Have a paper feedback form that is in each country's language.
Actions
What should we do next?

- SC staff to set up logins to the app for Tam
- MNRE to trial a paper feedback form at the Savaii trainings
- Briar to finish report
- Trial a paper feedback form for Tonga
- Tam to run a second presentation before the next cleanup about why we are gathering the data
- Ensure Lana includes a wider range of glove and vest sizes in kits we send out
- Julie to check there is a mobile / tablet device in LI kit for Tonga trip