

Table of Contents

Background, Purpose, Audit Sites.....	1
Audit Method Design.....	2
Additional Audit Methods.....	3
Specific Audit Site Information.....	4



Background:

The design of the **Port Phillip Baykeeper beach litter audit method commenced in 2014** in response to numerous Australian and international studies that have confirmed the direct environmental impact of marine plastic pollution. It was developed from the need to adopt a consistent data collection method among different organizations. The Baykeeper beach litter audit method is designed primarily to **rigorously document smaller litter items, particularly microplastics, that might otherwise be overlooked by groups conducting 'whole beach' clean-ups.**

Purpose:

This guide is provided for small teams to be able to complete an audit in 2 hours or less. This small time commitment will enable teams to **regularly complete monthly audits over the course of a year and achieve the statistical rigour required to confirm trends in litter volumes and type over time.**

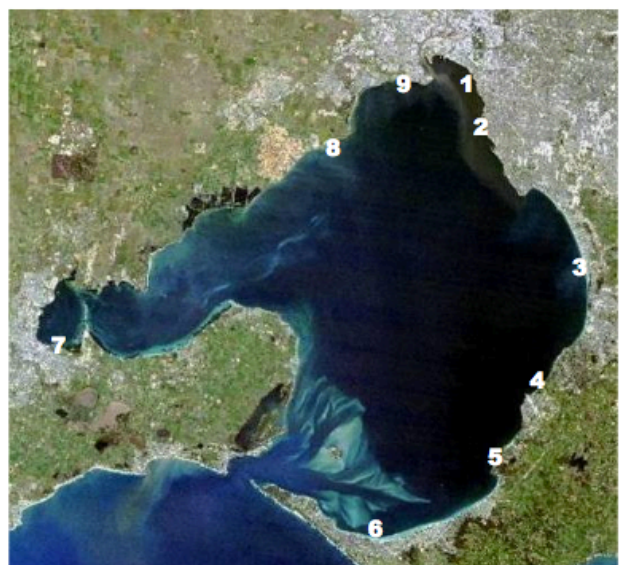
Audit Sites:

Eleven audit locations have been identified at beaches around Port Phillip Bay. Out of these, 8 are associated with **a river or a creek that flows into the Bay from an urban catchment.** The other 3 are located to gather data to provide insights on the **mobility of litter due to tidal currents and seasonal winds.**

Key factors affecting choice of location

The amount of plastics entering the Bay is closely associated with **rainfall events and storm surges.** Most plastics float in the upper water column and are carried on **wind-generated waves** or in the direction of **tidal currents** during calm (low wind) conditions. Due to the combined effects of tides and varying wind directions **some plastic objects may travel widely in the Bay before eventually being cast up on a beach.** Consequently, it is impossible to tell where litter stranded on beaches on any given day may have originally come from. To address this uncertainty, a **'baywide' approach** to consistently document and compare beach litter from several sites over at least **12 months** is required.

BAYKEEPER BEACH MICROPLASTICS AUDIT SITES



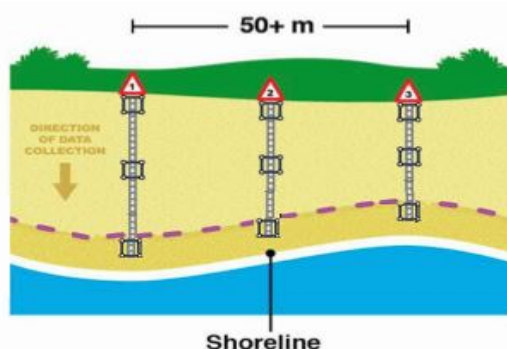
Need for statistical rigour

Statistical rigour is essential for the data to effectively inform measures to reduce plastic pollution, eg. legislative change, local source reduction plans, and influence community behaviour (choice of products for waste avoidance and responsible disposal).

The key components of statistical rigour are regular data collection, using the same method, at the same place, every month for at least a year (representing all seasonal conditions). To support and add value to the Tangaroa Blue 'whole of beach' audit method the terminology used in the data entry sheet is consistent with Tangaroa Blue's **National Marine Debris Initiative** database.

Snapshot of the 'whole beach' condition

The locations of the three transects that cross the beach ('widest', 'narrowest' and 'middle' sections of beach) provide a representation of the range of conditions created by locally prevailing winds, waves and tidal currents. These prevailing conditions transport sand and debris, including litter. The widest section of beach is where most sand deposition is occurring in the longer term; and the narrowest is where the least is occurring.



Beach width and 'last high tide' line

The width of the beach is formed by conditions prevailing over the longer term, and may vary seasonally due to sand erosion or deposition. However, the location of the **last high tide line** will vary from day to day due to prevailing wind conditions at the time of the tide. The reason for locating the quadrat at the last high tide line is that it provides an indication of litter arriving on that day.

Transect and Quadrat Locations

Each transect starts at the 'permanent landmark' at the top of the beach to ensure the transect is in the same place each time you conduct a survey. This is intended to ensure **statistical rigour** to systematically represent the prevailing conditions at that section of beach.

As shown above, transects run roughly at a right angle from the top of the beach towards the **closest point at the waterline**.

Each transect has its own **permanent landmark**; but the compass directions across the beach are the same for all transects.

The length of each transect (**distance between each permanent landmark and the last high tide line**) will generally vary according to the width of beach.



Planning your Audit:

Check the Bureau of Meteorology <http://www.bom.gov.au/> for tide times and weather conditions:

- Audits should be ideally conducted 1 hour after high tide
- Audits should not be conducted during strong winds or electrical storms
- Dress for the weather and wear a hat and sunscreen as necessary

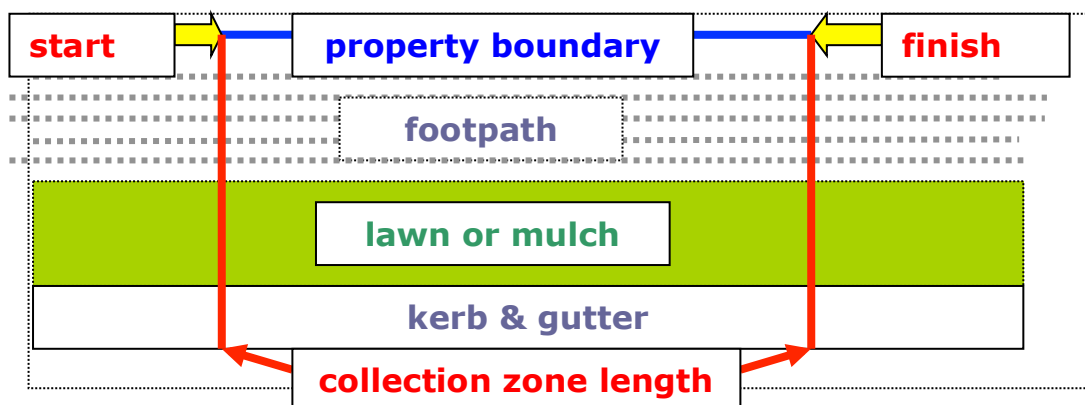
Additional Audit Methods

Tracking Beach Litter to Source

Separate datasheets have been created to capture data from **'Streets'** and from **'Creeks and Rivers'** that feed into the Bay. While the beach datasheets can tell us the types of litter entering the Bay, the **'Streets'** and **'Creeks and Rivers'** datasheets will tell us where it's coming from.

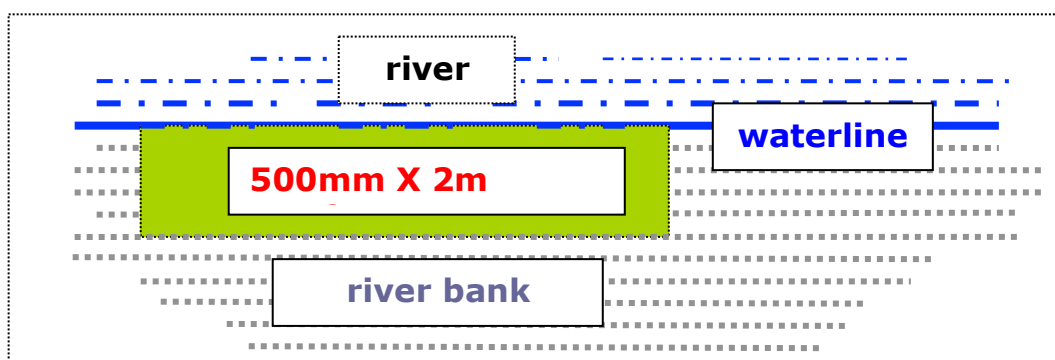
'Street' Audits:

Street audits are conducted noting which of the following land use applies: residential, parkland, commercial (24 hours), commercial (9/5 weekdays), industrial, or public buildings. In the Streets method, litter is collected from 3 zones located at the **footpath, grass and/or mulch beds, and gutter zones** of the street frontage to quantify litter from source to the stormwater system.



'Creeks and Rivers' Audits:

Creeks and Rivers audits are conducted on stream banks, with one quadrat located upstream of a stormwater drain outfall and one quadrat downstream. Comparing the litter found in quadrats that are upstream of a stormwater outfall with those that are downstream provides clues as to specific items that may be coming from the outfall.



Accessibility

- Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 280m



Permanent Landmark Locations of Transects

**Widest Section
Transect 1**

The permanent landmark is at the western most point of the boardwalk. Align transect with the boardwalk post.



Compass direction: 234N

**Midsection
Transect 2**

The permanent landmark is the parking meter. Align transect with the parking meter and the yellow buoy.



Compass direction: 234N

**Narrowest Section
Transect 3**

The permanent landmark is the streetlamp. Align transect with the streetlamp and the end of St. Kilda pier.



Compass direction: 234N

Accessibility

- Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 240m



Permanent Landmark Locations of Transects

Widest Section Transect 1

Align transect with the post of the Point Ormond Café.



Compass direction: 222N

Midsection Transect 2

Align transect with the lamp post.



Compass direction: 222N

Narrowest Section Transect 3

Align transect with the edge of the southernmost ramp of the beach.



Compass direction: 222N

Accessibility

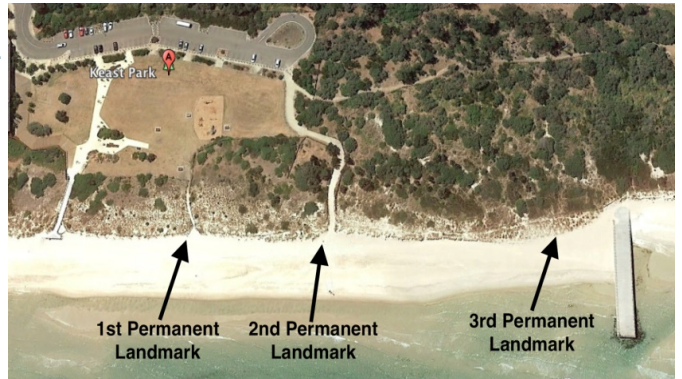
- Car park next to walkway leading to the beach. Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 180 m



Permanent Landmark Locations of Transects

**Widest Section
Transect 1**

Align transect with the emergency post 114.



Compass direction: 251 SW

**Midsection
Transect 2**

Align transect with the “Fragile Dunes” sign that is next to the walkway and near emergency post 115.



Compass direction: 251 SW

**Narrowest Section
Transect 3**

Align transect with the 5th treated pine post to the south of the “No Horses sign”. This sign is located next to the small concrete pier.



Compass direction: 251 SW

Accessibility

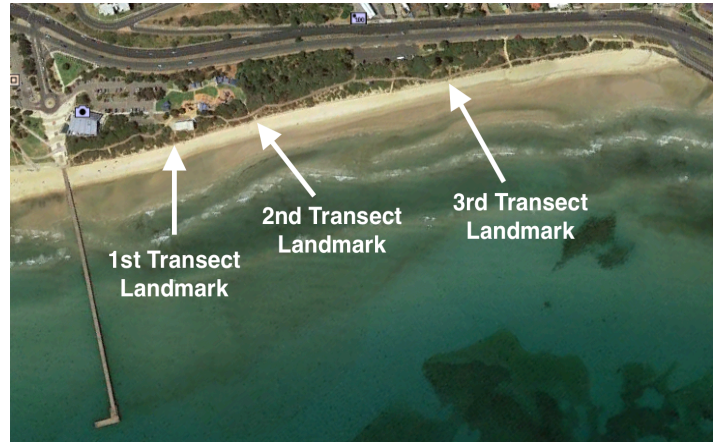
- Car park next to walkway leading to beach
Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 325 m



Permanent Landmark Locations of Transects

**Widest Section
Transect 1**

Align transect with the emergency post 158 by the entrance near the Australian Volunteer Coast Guard building.



Compass direction: 293 NW

**Midsection
Transect 2**

Align transect with the third post from the walkways by emergency post 159.



Compass direction: 293 NW

**Narrowest Section
Transect 3**

Align transect with the sign beyond the fence with green and blue directions (it is the post south of the emergency post 160).



Compass direction: 293 NW

Accessibility

- Car park next to beach entrance. Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Potential for asbestos in pieces of roofing or siding of beach boxes that break off
- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes, broken glass)

Additional Notes

- Distance between widest and narrowest transects: 274 m
- Sand is grainy, easy to confuse with nudles



Permanent Landmark Locations of Transects

**Widest Section
Transect 1**

Align transect with the tall gray post with electrical lead behind decaying tree.



Compass direction: 294 NW

**Midsection
Transect 2**

Align transect with the blue and yellow Beach box #84.



Compass direction: 294 NW

**Narrowest Section
Transect 3**

Align transect with the red, white and blue Beach box #121.



Compass direction: 294 NW

Accessibility

- Car park next to beach. Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 145 m



Permanent Landmark Locations of Transects

**Widest Section
Transect 1**

Align transect with the middle of the gate entrance to the beach.



Compass direction: 0 N

**Midsection
Transect 2**

Align transect with the second from the left post on short wall bordering the beach near the playground.



Compass direction: 0 N

**Narrowest Section
Transect 3**

Align transect with the sign in the parking lot that reads "Rye Pier 3P Area".



Compass direction: 0 N

Accessibility

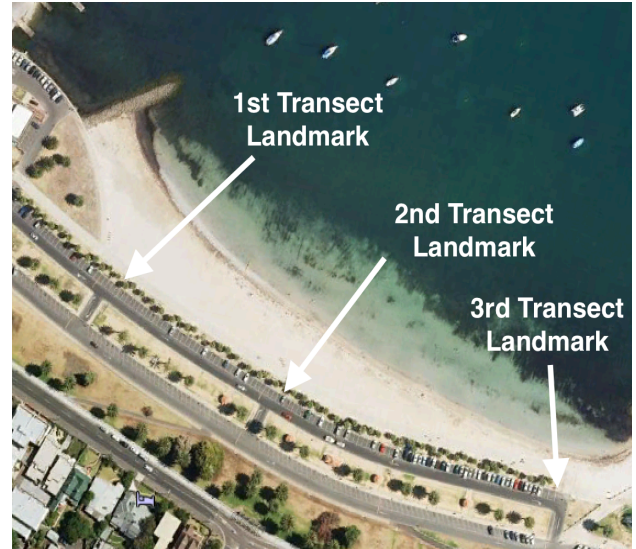
- Car park next to beach. Parking fee: \$5.10 per hour or \$12.30 all day

Hazards

- Volleyball courts
- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 272 m



Permanent Landmark Locations of Transects

**Widest Section
Transect 1**

Align transect with the palm tree located between the two chairs on the sidewalk at the western end of the beach (closest to ferris wheel).



Compass direction: 16N

**Midsection
Transect 2**

Align transect with the outside edge of the post closest to the ferris wheel of the sign labeled "Eastern Beach".



Compass direction: 16N

**Narrowest Section
Transect 3**

Align transect with the blue paint line marking the edge of the sidewalk at the eastern side of the beach (farthest from ferris wheel).



Compass direction: 353N

Accessibility

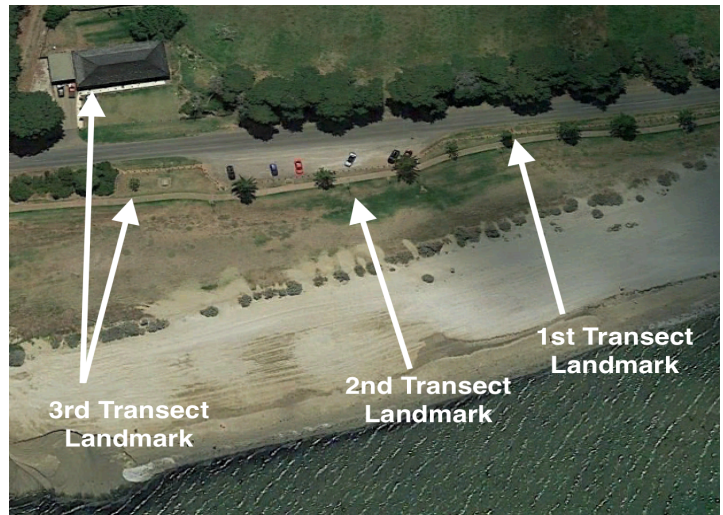
- Car park next to beach. No payment required for parking

Hazards

- Sharp shells on beach
- Common hazards include sun, wind, and cyclist and vehicle traffic on paths.
- Look out for sharps! (eg: syringes and broken glass)

Additional Notes

- Distance between widest and narrowest transects: 107 m



Permanent Landmark Locations of Transects

Widest Section Transect 1

Align transect with the two signs on the eastern side of the car park.



Compass direction: 16N

Midsection Transect 2

Align transect with the blue lamp post in front of the car park.



Compass direction: 16N

Narrowest Section Transect 3

Align transect with the door of the green building above beach and the large tree.



Compass direction: 353N