

**BOURDA
ENVIRONMENTAL
EDUCATION
CENTRE**

Bega Valley Roadside Litter Report

Background

Bournda Environmental Education Centre has been conducting an annual litter survey on Sapphire Coast Drive since 2011. 7 index sites were established and in 2014 the number of index sites was increased to include other major roads in the Bega Valley Shire. The surveys are based on the Keep Australia Beautiful Council (KABC) National Litter Index but differences in methodology mean results should be compared with caution. The surveys are not endorsed or associated with KABC in any other way.

Since 2011 Bournda EEC has been in partnership with South East Region of Councils (SERO) through the South East Resource Recovery Group (SERRG) Education Program. The analysis of roadside litter is a proposed activity for high school students, linking to outcomes in the new Science 7-10 syllabus and the existing Geography 7-10 syllabus. It would not be safe for younger students to conduct surveys on highway and arterial roads but there is scope for surveys in car parks, parks, residential areas, industrial areas, beaches, retail locations and shopping centres to assist councils to get a better understanding of litter problems.

Major Findings

- Major roadways in the Bega Valley have a significant litter problem as indicated by the measured items, weight and volume per 1000m²
- On average 50% of the litter collected was recyclable.
- Approximately 41% of the litter collected was plastic.
- The major component of the litter is fast food and beverage items.
- Slashing of litter makes it more difficult to clean up
- 16.6% of the waste items were identified as from McDonalds.
- The Princes Highway showed the highest level of litter as measured in items per 1000m²



McDonalds Merimbula staff assisting with Clean Up Australia Day 2012

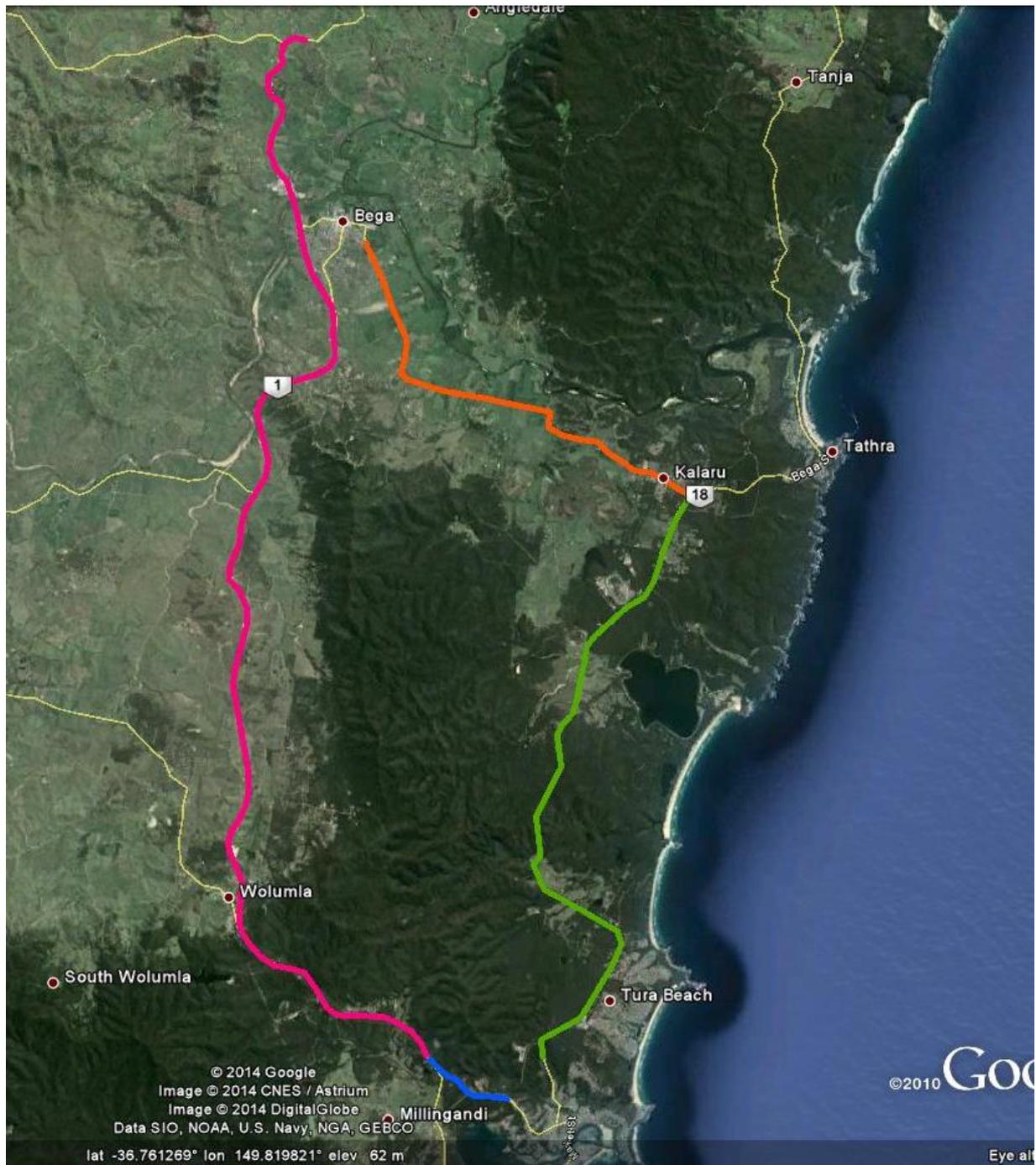
Methodology

Sites were selected at intervals ranging from 1 to 4 kilometres along major roadways in the Bega Valley. Safety was a major consideration with sites being chosen where the survey vehicle could be safely parked off the roadway. A 30m x 2m belt transect was measured from the rear of the vehicle using a tape measure and repeated on the opposite side of the road to give a total sample area of 120m². The site location was recorded using a GPS. Rubbish was collected, photographed and then recorded using a KABC Litter data recording sheet. The rubbish was sorted into recyclable and non-recyclable bags for disposal and the number of bags used and weight of the rubbish was recorded. The volume of rubbish collected was estimated with the bags holding approximately 100L. Due to the high visibility of the McDonald's litter, a separate count of these items was made at each site.

The sites selected were located where there was sufficient space for a vehicle to pull over and this may have led to an overestimation of the litter waste figures. However, it should be noted that the KABC methodology for highways included extending up to 10m from the roadside edge whereas our survey was limited to a 2m wide belt for safety and time reasons. This narrower sample strip would tend to underestimate total litter so it is considered that these two factors may cancel each other out.

Staff conducting the surveys wore high visibility clothing and the vehicle hazard warning lights were left on at each site.

Roadways surveyed



Key

Sapphire Coast Drive
Merimbula Drive
Princes Highway
Tathra Road

Results and Discussion (in ascending order items per 1000m²)

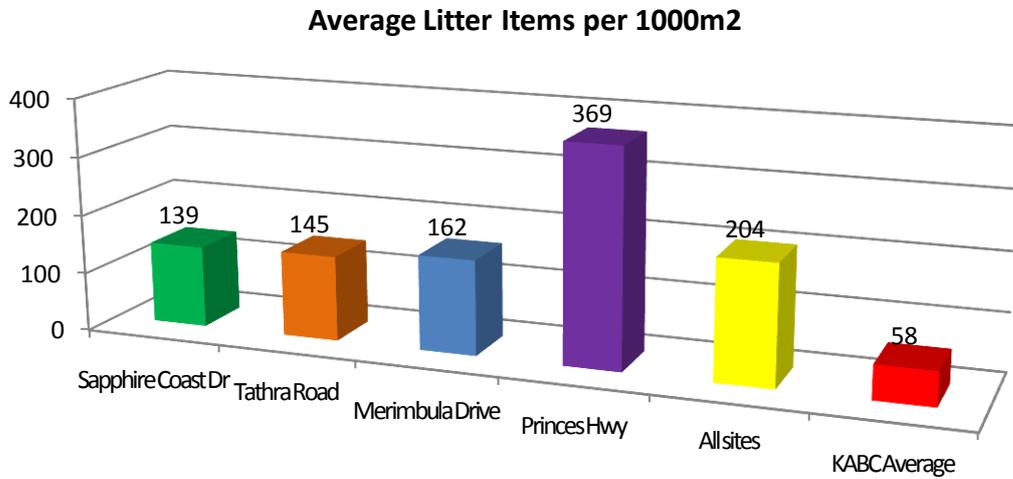
Road	Number of survey sites	Date surveyed	Average Items per 1000m ²	Average Weight per 1000m ² (kg)	Average Vol per 1000m ² (L)	Average McDonalds items per 1000m ²	% Average McDonalds rubbish out of total items per site
<i>Sapphire Coast Drive</i>	14	2011 - 2014	139	7.3	158	23.5	16.9
<i>Bega to Kalaru (Tathra Road)</i>	5	2014	145	13.3	333	5	3.4
<i>Merimbula to Princes Hwy (Merimbula Drive)</i>	2	2014	162	5.7	104	58.3	35.9
<i>Princes Hwy from Merimbula turnoff to Angledale</i>	11	2014	369	10.4	322	37.9	10.3
Average for all sites			204	8.1	211.75	31.1	16.6



Typical litter samples from 30m x 2m sites

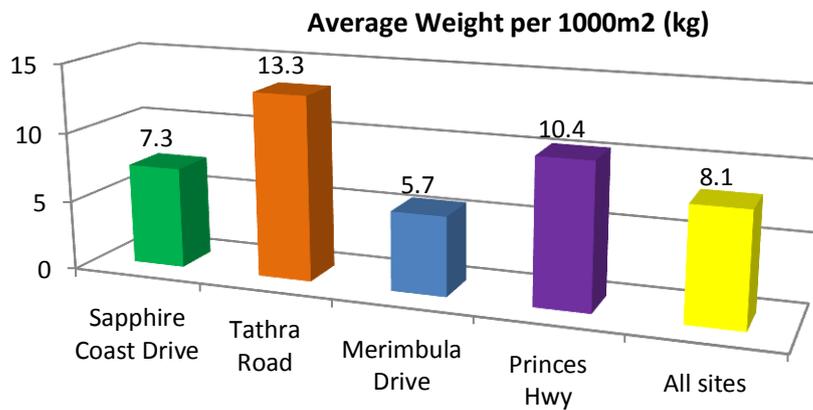
Items per 1000m²

The KABC National Litter Index Report 2012-13 identifies an average level of 58 items of litter per 1,000m² for highways. The average results for each roadway were much higher than this.



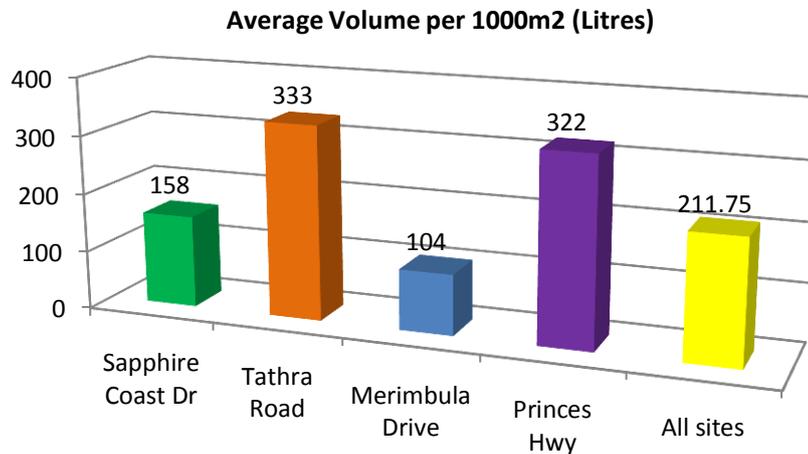
Weight per 1000m²

Much of the litter is very light e.g. plastic drink bottles, aluminium cans however there was some trade waste/building materials/car tyres found at several sites that contributed to a heavier weight estimate e.g. Bega to Kalaru.



Volume per 1000m²

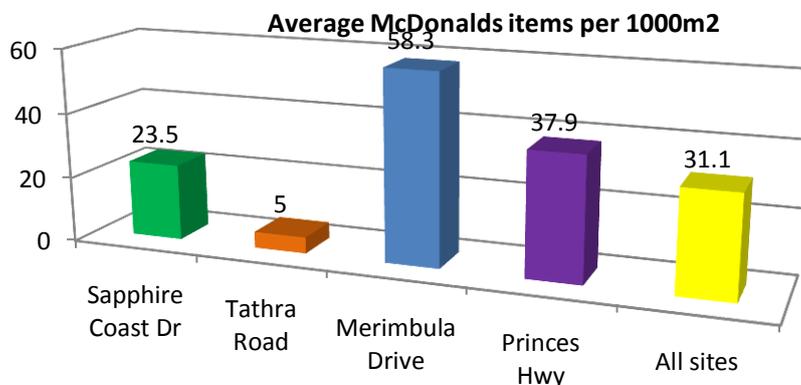
The KABC methodology estimates volumes from the number of items using established conversion factors. Our measurement of volume is the actual volume of rubbish as measured in the number of bags collected. A typical full bag was estimated to have a volume of 100 litres. The volume figures recorded are much higher per 1000m² than those reported by the KABC.



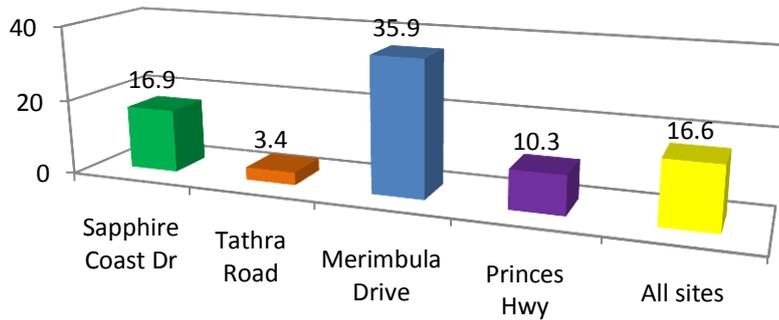
McDonald's items per 1000m² and as percentage of all litter items

Our experience from Clean Up Australia Day (CUAD) events, going back to 2008, was that a significant proportion of the fast food industry litter on Sapphire Coast Drive was from McDonalds. With only one store in the Bega Valley (Merimbula) and other stores located much further away (Cooma, Batemans Bay), it was reasonable to assume that the litter was coming from Merimbula. This is borne out by the decline in amount of McDonald's litter with distance from the store.

A new McDonald's store in Bega was opened on the 18th April so future surveys may show the impact of this store on litter closer to Bega. While this report does not include data since the 18th April, there appears to be a noticeable increase in the visibility of McDonald's rubbish in the vicinity of Bega since the Bega store opening.



Average Percentage of McDonalds of all items per 1000m2



McDonald's rubbish post-Bega store opening on Tathra Road and in Bega itself

It is pleasing that McDonalds have adopted mainly paper-based packaging but plastic straws and lids are among the more common items found during the surveys. At the time of a visit to the Merimbula store in 2013 there was no signage in the "drive thru" area that highlighted the need for responsible disposal of litter and no signage in the store. Litter items have a small printed disposal message. Signage is also absent from the Bega store and surrounds. The lack of signage in outlets selling fast foods and beverages is not confined to the McDonald's franchises.

In 2012 the management of McDonalds in Merimbula were approached about litter on Sapphire Coast Drive and responded positively with assistance with CUAD in 2012 and 2013. They also made a generous donation to help purchase litter clean up gear. In addition McDonalds Australia sponsors the annual national CUAD event. Bournda EEC registers Sapphire Coast Drive as a Clean Up site and receives bags, gloves and other assistance from CUAD. New managers/owners of McDonalds Merimbula did not respond to a request for assistance in 2014.

Slashing

Roadside slashing is an important road safety and fire mitigation practice. However, where there is a lot of litter it can create an unsightly problem especially for those that are cleaning up. Instead of picking up one bottle or can there may be four or more fragments to pick up.



Slashed materials (possibly a pillow) on Sapphire Coast Drive

Sapphire Coast Drive is a tourist drive and connects the important tourist centres of Merimbula and Tathra. The roadside litter detracts from the clean image visitors expect on Sapphire Coast/Wilderness Coast.

Since 2008 an annual CUAD event has been held on part of Sapphire Coast Drive located within the Bournda National Park/Bournda Nature Reserve. This may have contributed to a lower number of litter items (131.7 items per 1000m²) than the 159.5 items per 1000m² for the other Sapphire Coast Drive sites, which are closer to residential areas and other properties, that were not included in the CUAD area.

Sapphire Coast Drive has two waste disposal facilities at either end (Merimbula Tip and Wallagoot Transfer Station) and there may be some litter that comes from poorly secured loads. Residents have advised that when the Wallagoot Transfer station was proposed concerns were raised about this possible source of rubbish and additional roadside clean ups were proposed by BVSC at that time.

Tathra Road passes through a largely rural/dairy environment although closer to Bega and Kalaru there are greater densities of settlement. The lack of McDonalds' rubbish was a noticeable feature for this stretch of road. The high litter weight figure 13.3kg per 1000m² was due to bulkier trade waste/building materials which was also reflected in the higher volume measurement.

Merimbula Drive is a short section of road connecting Merimbula to the Princes Highway. Only two sites were sampled but both showed a high level of fast food litter, particularly McDonalds. This might be due to visitors making a quick trip into town off the highway and discarding waste as they continued their journey.

The **Princes Highway** is a major interstate highway carrying lots of traffic between Victoria and NSW. The high levels of fast food and beverage rubbish are again consistent with travellers although it is

entirely possible that locals also make a significant contribution. The new central waste processing facility at Wanatta Lane may have an impact on future surveys.

Conclusions

- The overall average of 204 items per 1000m² is significantly higher than the average of 58 items of litter per 1,000m² for highways reported in the KABC National Litter Index Report 2012-13.
- The Princes Highway has significantly higher levels of litter items than the other roadways.
- The major component of the roadside litter is fast food takeaway containers and drink beverage containers.
- McDonalds litter was present at 70% of the sites and accounts for an average of 16.6% of the litter items collected. The McDonalds “footprint” diminishes with distance from the Merimbula store (pre- Bega store opening)

The results of the survey show that litter has the potential to impact on our clean beaches and waterways. The current litter problem could be detracting from the Sapphire Coast’s reputation as a clean, green destination for domestic and international tourists and would appear not to be consistent with community pride in our local environment.

Recommendations/Future Directions

There is an excellent opportunity for local government, community groups, industry, business and schools to work collaboratively on this issue. Together we can build community pride in working towards an environment that is clean and attractive to others. Our reputation as the Wilderness Coast and the Sapphire Coast needs to be protected.

Bournda EEC has applied for an NRMA Environment Grant to host a forum on litter involving a wide range of community members.

We would like to extend our litter surveys to include sites at beaches, car parks, industrial areas, residential areas, retail locations and shopping centres to get a better understanding of the problem.

Through the SERRG education program we hope to build school/local government cooperation on roadside litter initiatives.

Acknowledgements

Bournda EEC would like to acknowledge the support of the SEROC (SERRG) Education Program and in particular, Ally Madden and Geoff Pryor.

Also the former owners of McDonalds Merimbula for their positive engagement with assisting with Clean Up Australia Day activities, particularly Andrew Johns

References

"National Litter Index | Keep Australia Beautiful." 2012. 22 Apr. 2014 <<http://kab.org.au/litter-research/national-litter-index-2/>>