

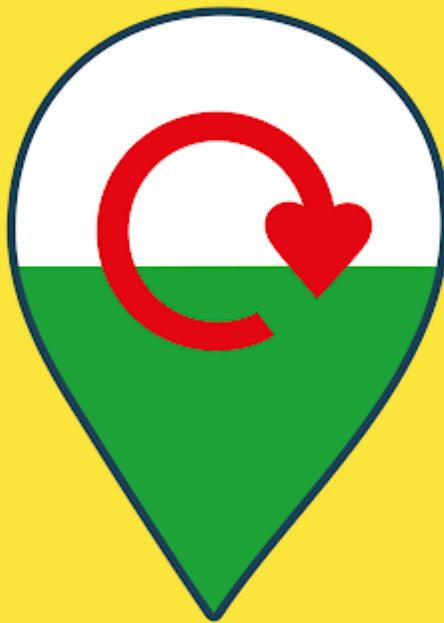
# 'In the Loop' Swansea



## Analysis Report by Keep Wales Tidy

For Hubbub UK

Gadewch i ni gadw #AbertaweYnAilgylchu



Let's recycle. Keep Swansea #InTheLoop

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## Part 1: Compositional Analysis Overview

### Key points

- ◆ Average of 24% increase in collected content over campaign
- ◆ Average of 23.84% reduction in contamination of recycling bins over campaign
- ◆ Significant and consistent decrease in contamination of general bins with target content.
- ◆ Separate coffee cup bins inconsistent and cause confusion and contamination with other recyclable and non-recyclable content in both recycling bins elsewhere and the cup bins themselves
- ◆ Overall results have demonstrated a key behavioural insight in that people will 'err on the side of caution' when confronted with a choice over doing the right thing. I.e., people will opt for recycling if there is confusion about material and a prompt to do so.

6 counts took place each month between September 2019 and February 2020 which analysed a total of 153 bags from priority bins, 69 of which were recycling and 66 were residual. The overall weight of waste sorted (recycling and general) was 233.72kg (113.72kg of which was from recycling) which equalled 6408 items (2859 from recycling).

In addition, and not included in the overall figures above, 3 coffee cup bins were analysed. These were introduced in sort #3 and the bins were relocated to become part of some of the quad bins in sort #6. These have been analysed separately.

The primary analysis has been on the composition of the recycling bins, however additional analysis has been done on the general bins with interesting results. Further analysis has considered the contamination ratio per bin and changes over the period.

Some anomalies should be taken into consideration, primarily the occurrence of Fresher's week in Sort #2 where large and unusual items such as boots, and handbags were discounted from the audit. All effort was made to remove significant amounts of liquids from bottles, but certain levels of liquids will have inevitably affected the overall weight count. Dates of when the sorts took place can be seen in the overview table below.

Categories which were weighed and counted – were as follows:

Category	Total counted in Recycling bags (Kg) *	Total counted in recycling bags (No.) *
Glass	31.18	100
Plastic bottles	25.18	716
Cans	8.89	380
Paper (wet and dry)	5.19	173
Coffee cups	6.61	317
Cup lids	2.55	421
<i>*Not including Coffee Cup bins</i>		

Cup lids and residual waste was also counted separately. Only glass, plastic bottles and cans were considered to be 'target collection' content, everything else including residual waste, has been considered as contamination. The exception to this is where separate analysis has been done on the coffee cup bins where only cups and lids have been considered as 'target content, however, these are not included in the overall figures.

Although it has been outside of the scope of this analysis, the number and weight increase over the course of the period may indicate a greater participation in responsible disposal overall – if the figures were available, the council may wish to consider any street cleansing / litter data for the period since the campaign was introduced in order to verify this.

## Key Figures

	Date of count	Number of Bins sorted	Total Number of bags	Number of Recycling bags	Number of General bags
<b>Sort #1 (BASELINE)</b>	5 <sup>th</sup> Sept 2019	8	18	10	8
<b>Sort #2</b>	3 <sup>rd</sup> Oct 2019	8	22	11	11
<b>Sort #3</b>	21 <sup>st</sup> Nov 2019	8	18	10	8
<b>Sort #4</b>	9 <sup>th</sup> Dec 2019	10	25	12	13
<b>Sort #5</b>	9 <sup>th</sup> Jan 2020	9	24	12	12
<b>Sort #6</b>	18 <sup>th</sup> Feb 2020	10	28	14	14
<b>Totals:</b>		53	135	69	66

	Total Weight Sorted	Total Weight of Recycling bags	Total weight of General Bags	Total Number of Items sorted	Total Number in Recycling bags	Total Number of general Bags
<b>Sort #1 (BASELINE)</b>	46.6	29.08	17.52	1259	708	551
<b>Sort #2</b>	39.29	15.68	22.08	1093	379	715
<b>Sort #3</b>	37.22	20.99	16.23	941	479	462
<b>Sort #4</b>	30.01	11.52	18.49	868	337	531
<b>Sort #5</b>	34.29	19.10	14.65	854	471	383
<b>Sort #6</b>	65.07	17.35	31.03	1780	485	907
<b>Totals:</b>	252.48	113.72	120	6795	2859	3549

	Target Content in Rec bags	Residual in Rec bags	Target content in Gen. bags	Residual in Gen bags
<b>Sort #1 (BASELINE)</b>	11.79	17.29	3.77	20.43
<b>Sort #2</b>	9.65	6.03	2.05	20.43
<b>Sort #3</b>	15.72	5.27	3.37	12.87
<b>Sort #4</b>	6.74	4.78	0.84	17.63
<b>Sort #5</b>	10.05	9.05	1.31	13.34
<b>Sort #6</b>	11.30	6.05	1.16	29.17
<b>Totals:</b>	65.25	48.47	12.5	113.87

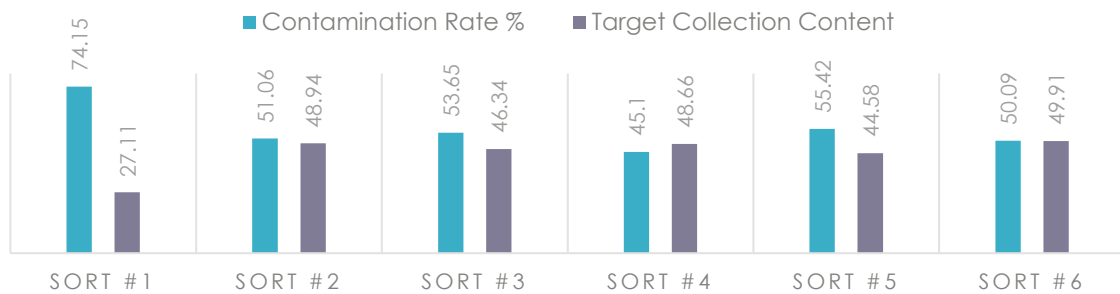
Average Contamination over campaign (%)	Average target content over campaign (%)
34.86%	63.92%
<b>Average of 23.84% reduction</b>	<b>Average of 24.34% increase</b>
31.17% actual reduction between baseline and last count	33.42% actual increase between baseline and last count

### Recycling composition

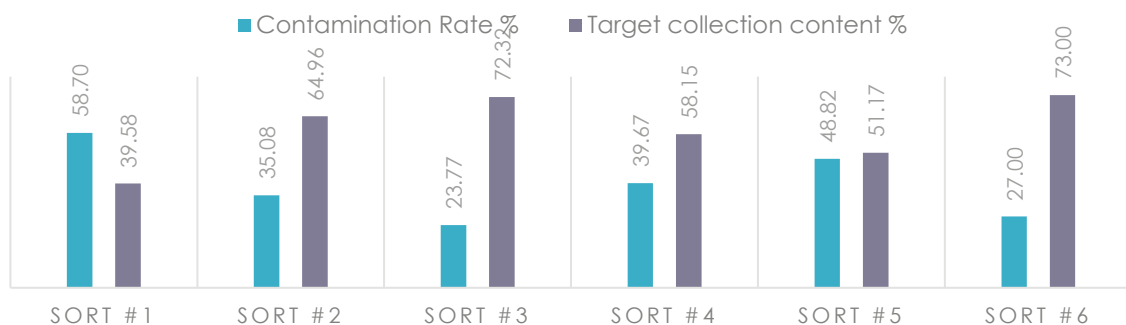
The graphs below show that, although variable, there has been a relatively steady decrease of contamination rates and increase in target collection content. The figures below show only the compositional analysis of the recycling bags which was the main priority, however, further analysis has been undertaken on some of the findings from general waste bags.

The data shown by the weight versus the number of items is relatively comparable, although the number of items demonstrate a steadier and more consistent picture. It may be more helpful to consider specific categories by number, rather than weight such as particularly heavy items (e.g.: glass) and particularly light items (e.g.: coffee cups or cans).

Contamination rate and target collection content (%) by number of items  
(recycling bags only)



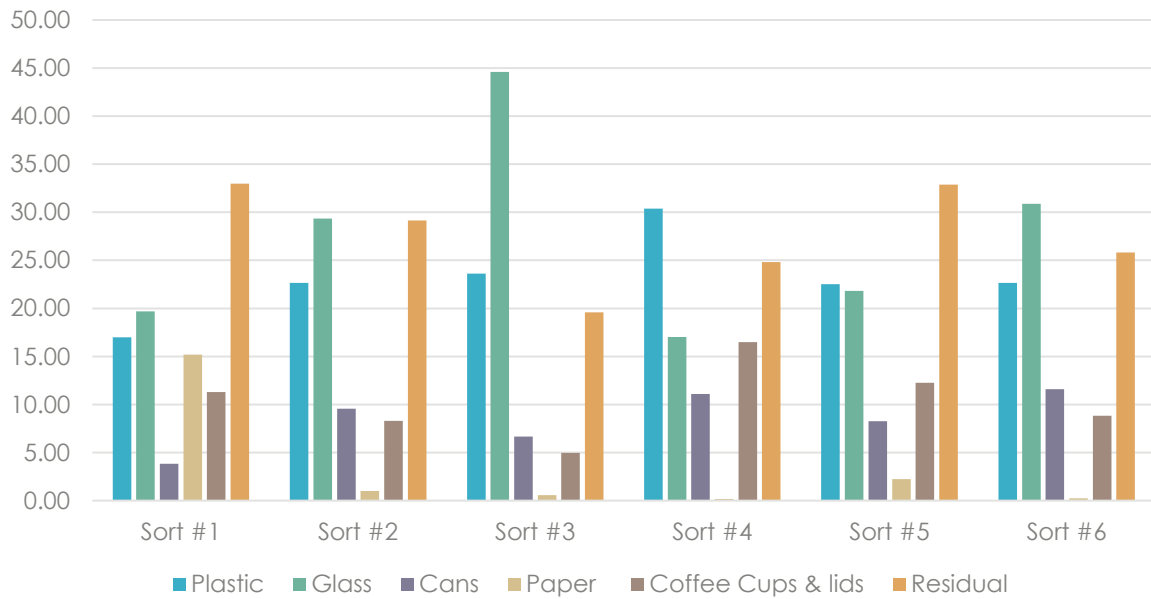
Contamination rate and target collection content (%) by weight (kg)  
(Recycling bags only)



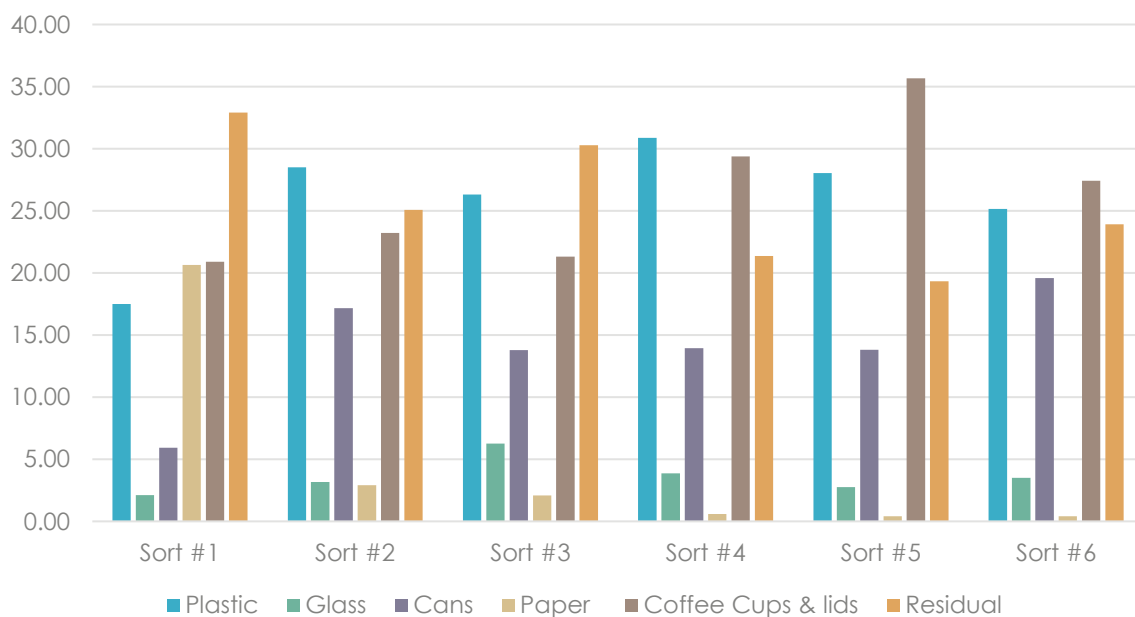
Some items show a relatively consistent level of correct disposal. Plastic bottles for example. This may reflect the differing types of materials and understanding of recyclability in the general public. Glass is the most variable material and although the peak above correlates with Fresher's week, the second peak in Sort #6 does not appear to have any obvious external influence.

What should be noted however, is that paper, which was not included in the campaign as target material, has seen a significant drop in the recycling bag composition.

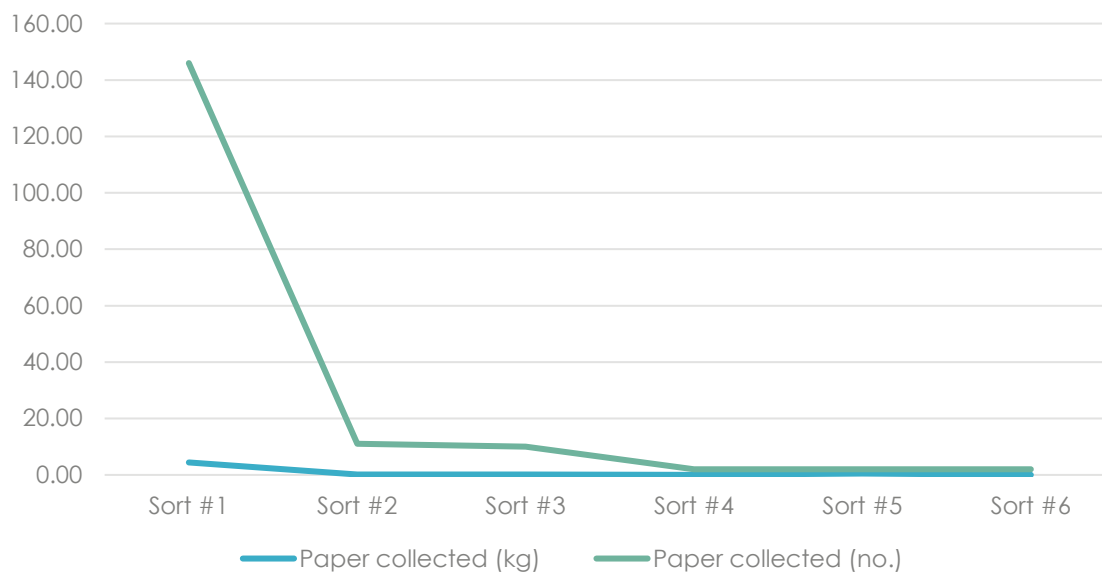
% of material collected by weight (kg)  
(Recycling bags only)



% of material collected by no. of items  
(Recycling bags only)



## Paper in Recycling bags only - weight and no.



## Bin Analysis – General vs Recycling

An important pattern in the data is worth highlighting in regard to the content of general bags and that is the significant and persistent change in the amount of target collection content in general bags. Particularly in regard to the number of items. The graph below shows the target collection items shown in recycling and general bags over the period.

When looking at the analysis per bag, many general bags showed 100% residual waste or very close. The baseline shows that this has decreased from around a third of general bags being made up of target content. These high ratios were constant throughout the period with the exception of 1 bin which showed a negative ratio twice (DQ8 at White Walls).

Conversely, the recycling only bags did not reach these levels at all during the period. This may suggest that there is still some confusion over what is and is not recyclable or that people have a tendency to err on the side of caution when trying to do the right thing, opting for recycling instead of being wrong. Either way, this is a significant change. A sample of the per bin analysis from bins which were analysed each month is shown below:

Sample showing ratio of Target / Non-target items in General bags by Weight							
Bin code & Bag type		Baseline	Sort #2	Sort #3	Sort #4	Sort #5	Sort #6
VD25	General	23/77	2/98	9/91	4/96	7/93	7/93
VD29	General	18/72	2/98	14/86	4/96	0/100	26/74
VD3	General	53/47	26/74	8/92	6/94	11/98	0/100

Sample showing ratio of Target / Non-target items in General bags by Number of items							
Bin code & Bag type		Baseline	Sort #2	Sort #3	Sort #4	Sort #5	Sort #6
VD25	General	13/87	4/96	4/96	5/95	10/90	5/95
VD29	General	9/91	3/97	62/38	7/93	0/100	11/89
VD3	General	17/83	5/95	4/96	11/89	9/91	0/100

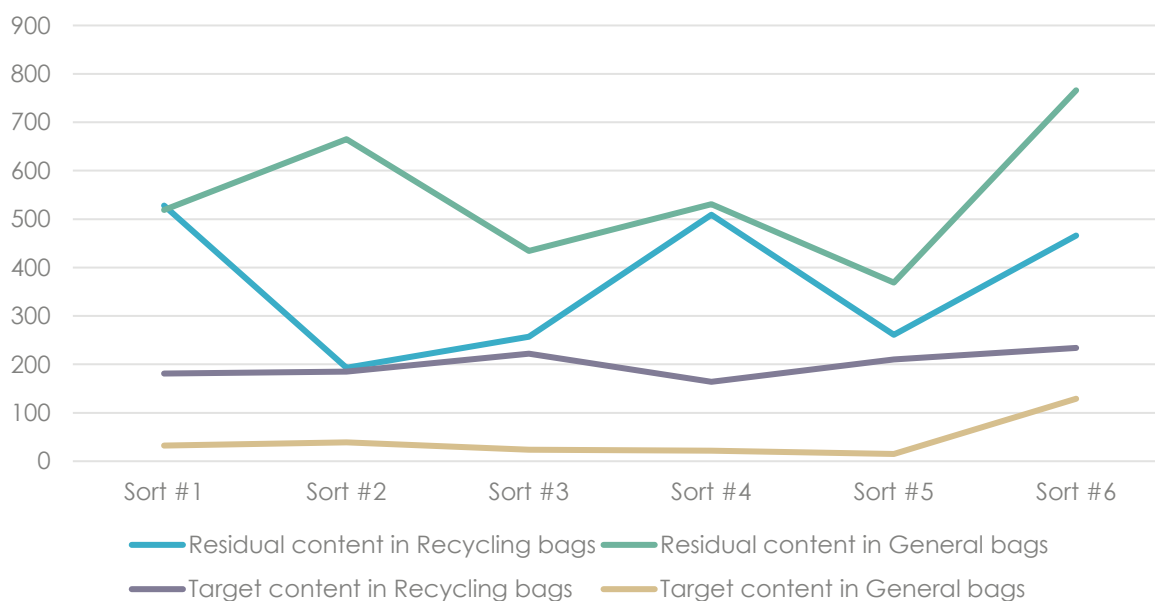
Sample showing ratio of Target / Non-target items in Recycling bags by Number of items							
Bin code & Bag type		Baseline	Sort #2	Sort #3	Sort #4	Sort #5	Sort #6
<b>VD25</b>	Recycling	40/60	71/29	75/25	62/38	84/16	66/34
<b>VD29</b>	Recycling	18/72	64/36	69/31	45/55	57/43	84/16
<b>VD3</b>	Recycling	0/100	94/6	91/9	0/100	29/71	73/27

Sample showing ratio of Target / Non-target items in Recycling bags by Number of items							
Bin code & Bag type		Baseline	Sort #2	Sort #3	Sort #4	Sort #5	Sort #6
VD25	Recycling	37/63	51/49	52/48	46/54	73/27	58/42
VD29	Recycling	36/64	33/66	38/62	35/65	43/57	73/27
VD3	Recycling	0/100	73/27	80/20	0/100	50/50	75/25

In terms of bin type, there appears to be little correlation in relation to content with many showing variability. Interestingly however, Bin VNR2 which was the only solely general waste bin included in the study also showed very low rates of target content in Sort #4.

However, there were some bins which consistently under-performed for recycling, notably VD14 and DQ3, both on Oxford Street. DQ5 should also be considered.

Residual & Target content by weight (kg) in Recycling vs. General bags





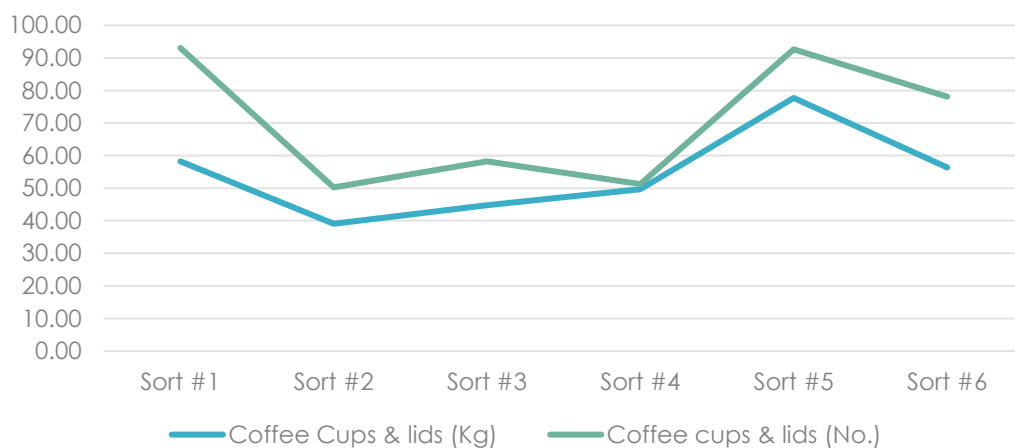
## Coffee Cup bins

Separate Coffee Cup bins were introduced in Sort #3 and were made to be a part of the Quad bins in Sort #6. For these bins, only Coffee Cups and lids have been considered as 'target content' – all other items, even if they were recyclable has been classed as 'contamination'. It should be noted that the sample for Sort #3 was very low.

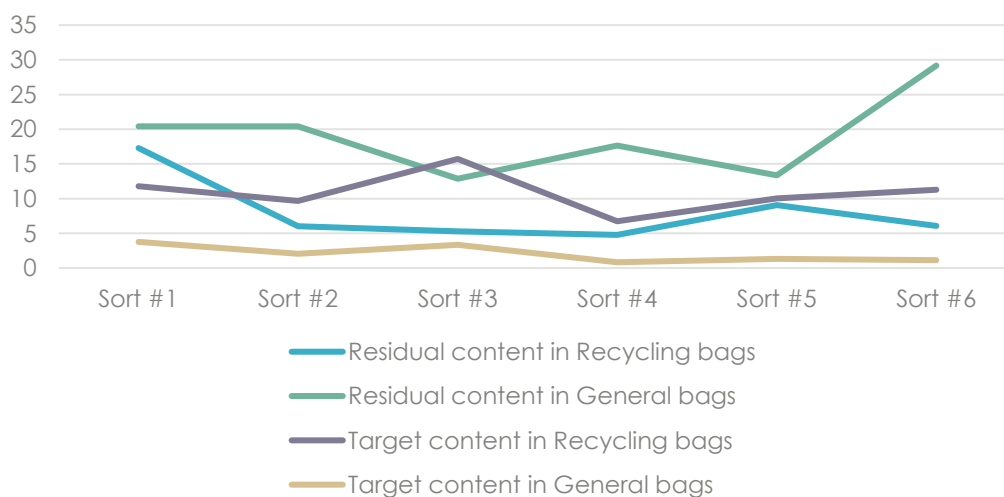
The data shows that coffee cup separation has decreased over the period and many residual recyclable and non-recyclable items were found in these specific bins. However, there is some indication that since the coffee cup bins were introduced, that it has had an impact on the amount of coffee cups ending up in recycling bins elsewhere. This would indicate that the separate bins for cups have caused more confusion over materials. In the last sort, the bins were integrated into the recycling bins themselves and as both a % of weight and total no, the contamination with other (mainly recyclable) items was increasing significantly.

As seen in the graph below, a steady increase can be seen since their introduction in terms of the number collected. This may indicate a shift in the public perception of their recyclability and perhaps a lack of understanding in the need for separation from other recyclables. The weight of coffee cups is affected greatly by the liquid content and saturation of material and the number of items provide a more accurate picture of composition.

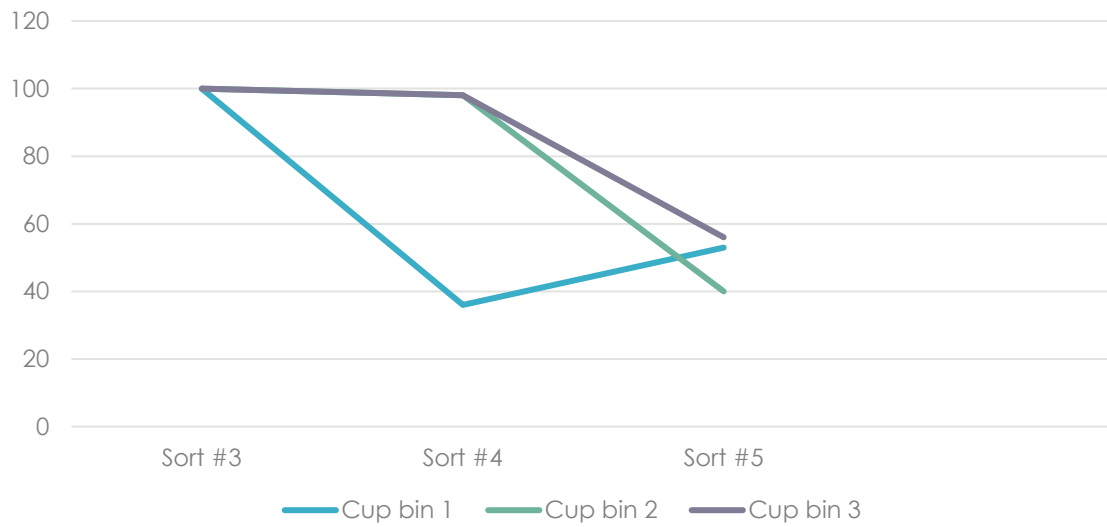
Coffee cups and lids collected in recycling bags only by weight (kg) and no.



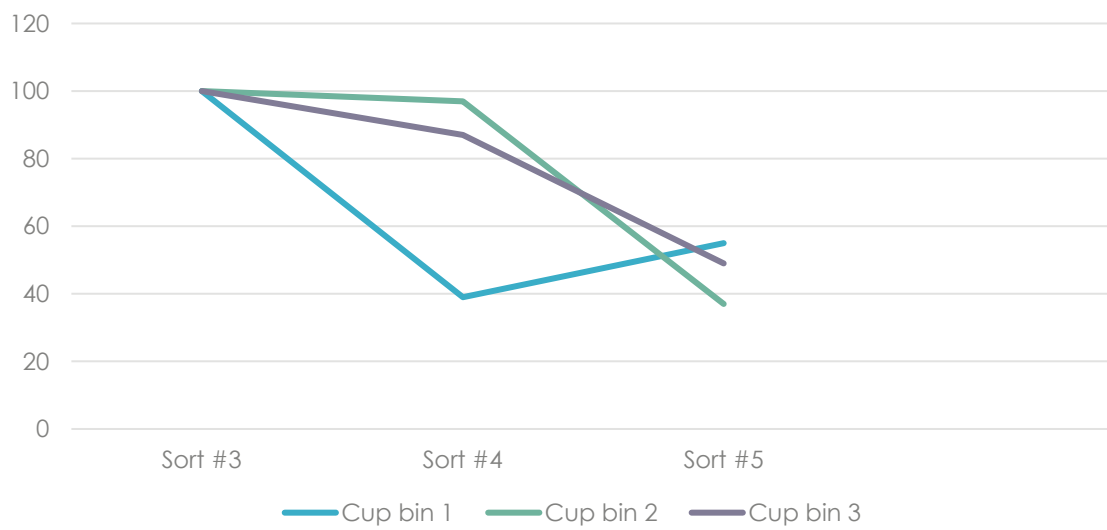
Residual & Target content by weight (kg) in Recycling vs. General bags



Coffee cups as a % of collected material from separate Cup Bins (weight)



Coffee cups as a % of collected material from separate Cup Bins (no.)

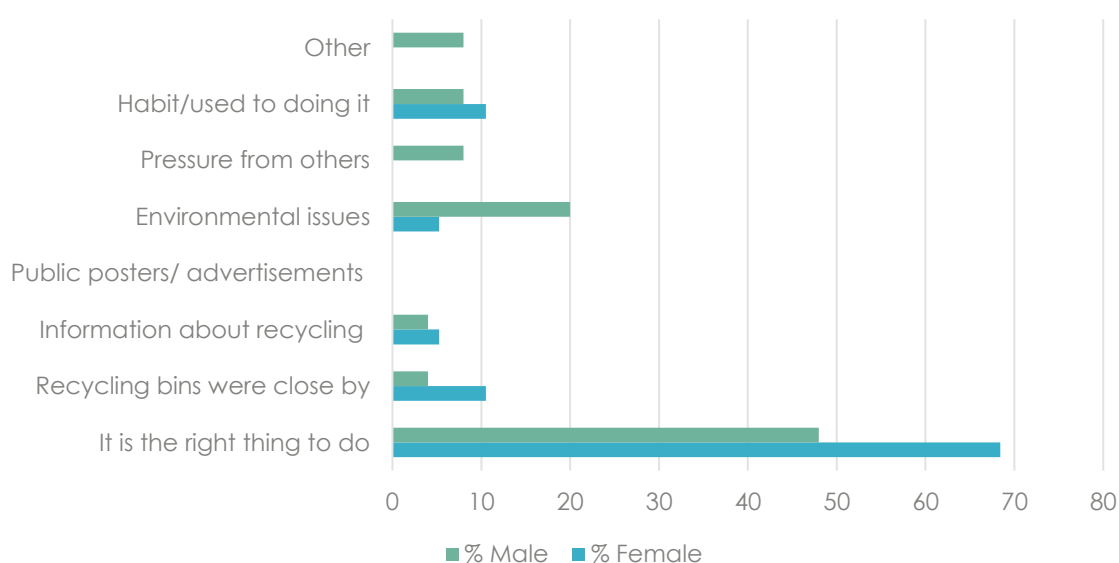


## Part 2: Swansea, 'In the Loop' – Survey Analysis

### Key Points

- Females and under-30's consistently reported higher recycling participation compared to males and those in higher age brackets, particularly 50+
- The overwhelming motivation overall behind recycling any item was that it was the right thing to do followed by proximity of a recycling bin. The latter featured more significantly as a factor for those with children or those over the age of 50.
- Under 30's were more likely to cite environmental reasons behind their motivation
- Plastic Bottles and cans were more likely to be recycled than food packaging or coffee cups.
- The majority of people who did not recycle claimed that there was no recycling bin around at the time of disposal. Only very small number of people cited that they were confused or did not know whether items could or could not be recycled (less so for younger age brackets).
- Over 50's were more likely to take their rubbish home to dispose of than other age brackets especially the under 30's.
- Similar age and gender patterns were identified compared to the pre-survey analysis with under-30's reporting a higher level of recycling behaviours and citing environmental reasons for doing so.
- 48% of men reported that their motivation was the 'right thing to do' compared to 68% of women in the post-survey, consistent with earlier findings.
- All of the respondents who reported seeing something about recycling when out and about had reported recycling behaviour although none of them cited what they had seen as a motivation for their behaviour.
- People in the post-survey analysis appeared to score themselves higher for recycling when out and about, compared even to household recycling. (This is surprising given Wales' record household recycling participation).
- 25.27% increase in high scoring self-reported behaviour for recycling when out and about compared to the pre-launch survey and 6% increase in higher scoring 'at home' recycling behaviours.
- 15.74% increase in overall on-the-go recycling behaviour.

### Motivation for recycling by Gender (Post-Launch)



## Pre-launch survey analysis

Surveys were a mixture of targeted online respondents and random face to face street surveys (55% to 44% respectively). The majority of respondents were female (58%) and were under 30 (34%) although all age ranges were represented.

The majority of respondents found themselves in the City centre for socialising purposes (33%) followed by work (26%) although 70% were in the centre (at the time of surveying) alone, 22% were with others and a further 8% were accompanied by children.

Perhaps unsurprisingly, respondents in the latter category were more likely to report their motivation for recycling as being the right thing to do or attribute it to habitual behaviour but were much more guided by the proximity of available recycling bins. All of this group reported recycling cans, bottles and cups (less so food packaging) despite scoring themselves significantly lower on how well they recycled outside of the home (an average of 2 for this group on a 1-5 ascending scale compared to the overall average of 4) compared to 5 inside the home.

The under 30's reported buying more plastic bottles and cans than other age groups and also claimed higher use of recycling bins. Of those who bought plastic bottles for example, 72% claimed they put it in a recycling bin compared to the average of just 40%. Other items such as coffee cups and cans were also on average or higher. This age group also reported higher averages for recycling both inside and outside the home (5 and 4 respectively).

Most notably, under 30's cited their motivation to recycle as being the right thing to do (62%) than the but many more cited explicit environmental issues (30%) – both of these were higher than the overall response. This age group also appeared to be much more likely to notice / have noticed coloured bins rather than any campaign or any general mentions.

However, the over 50's age group reported to be much more likely to take rubbish home (26%), especially compared to the under 30's (0%). From those who recycled their items in this age group, they were as equally guided by the motivation of doing the right thing as they were to proximity (50% respectively).

## Overall results

Across all responses, although self-scoring of recycling behaviours in the home was relatively high (an average of 4 on a 1-5 ascending scale), of those who indicated a response of 3 or higher, there was no apparent correlation between this and their recycling behaviours on the street with many of these reporting *not* recycling commonly collected items.

Overall, for all items, females were more likely to report recycling behaviours (at home or on the street than males with an average of 65% reported recycling behaviours.

60% of people who disposed of items in a general rubbish bin said that their reason for doing so was that there was no recycling bin around. 13% of people said that their item could not be recycled and just 10% said they didn't know either it could be recycled or not.

Of those people who used the recycling bin, the primary motivation was because it was the right thing to do (59%). 19% said that it was because it was convenient (i.e., recycling bin were close by) and 13% said noted explicitly for environmental reason.

The average self -scoring for recycling behaviours in the home was 4 (with 5 being the highest and 1 being the lowest. 50% rated themselves as 5 and 46% rated themselves as 3 or below. The average score for out of the home recycling behaviours was also 4 but 66% rated themselves as 3 or below compared to 4 (34%) and 5 (just 11%).

61% said that they had NOT seen or heard something about recycling food and drinks when out and about although of the ones that had, overwhelmingly people cited the coloured recycling bins. General mentions made up 17% of responses.

### Plastic bottles

25% reported disposing of plastic bottles when out and about (75% of which were also bought out). 40% reported disposing of their bottle in an on-street recycling bin, although this rises to 63% when all recycling options were combined e.g., taking it home to recycle or recycling in the workplace. 37% reported putting it in the general waste and just 8% took it home.

78% of those who disposed of plastic bottles in a general rubbish bin said that their reason was that there was not a recycling bin close by. 11% said they didn't know it could be recycled.

Of those who recycled the bottle, 50% said that it was the right thing to do and 27% said that there was bin nearby. The majority of respondents who reported recycling in this area were in the lowest age brackets (interestingly the majority of responding who did recycle were in the lowest age bracket (57% under-30).

69% of females reported recycling plastic bottles compared to 56% of males.

### Coffee cups

12% reported disposing of coffee cups (90% of which were bought out). Unsurprisingly, only 38% of these were disposed of on the street (38%) with various other cited options such as disposing in the workplace or at home making up the rest of the total. 55% disposed of their cups in general waste bins (55% when combining all recycling options) and 38% said they recycled (40% when combined).

72% said that they used a general waste bin because there wasn't a recycling bin around (predominantly in the older age brackets of over-30's and particularly those aged 65+).

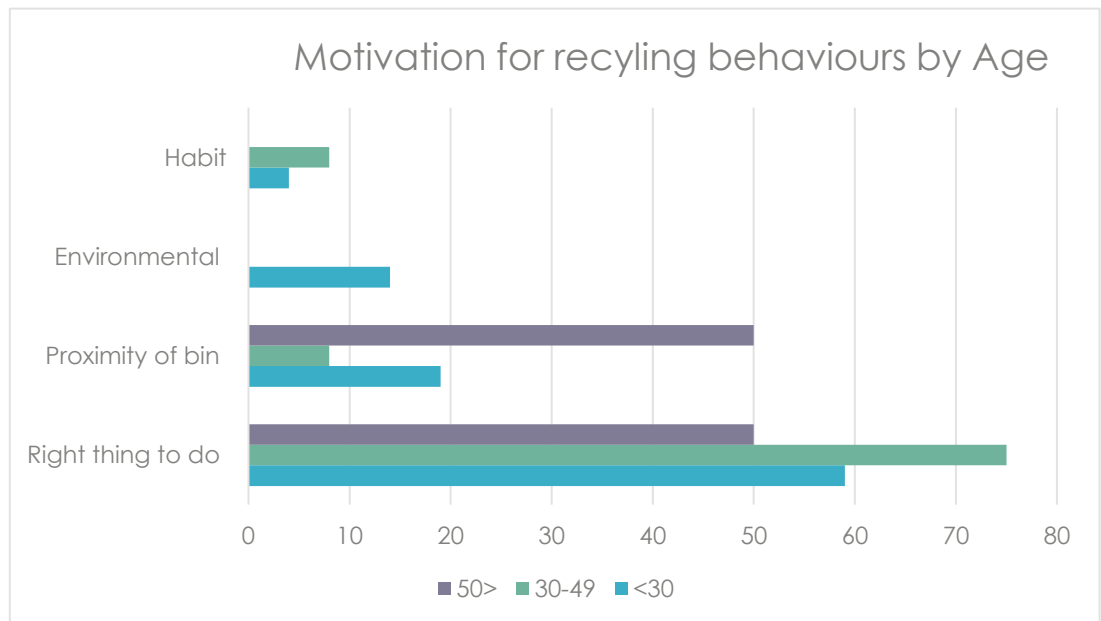
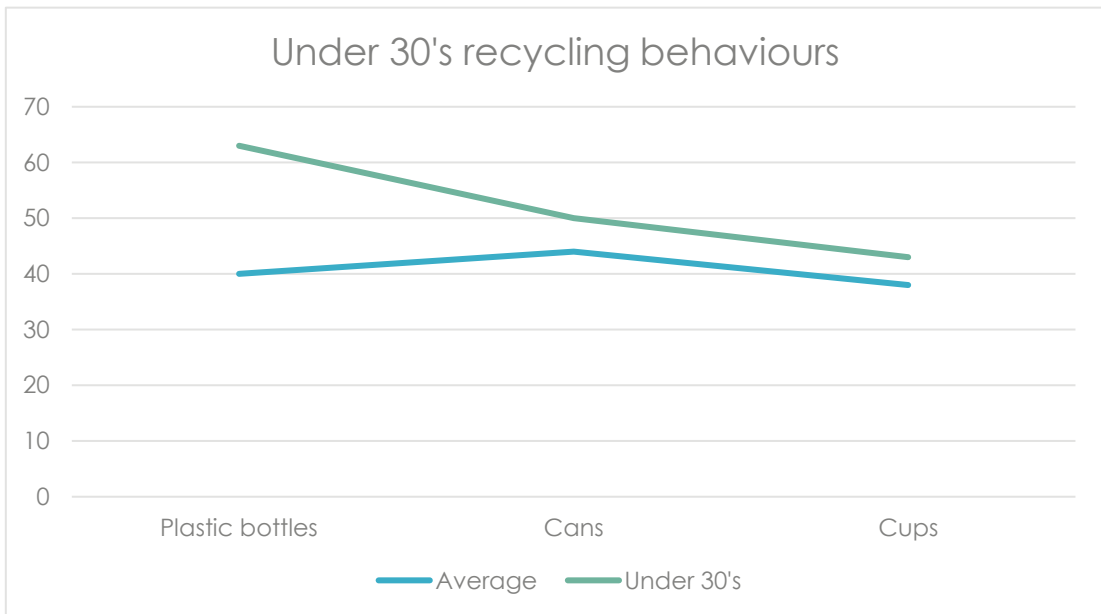
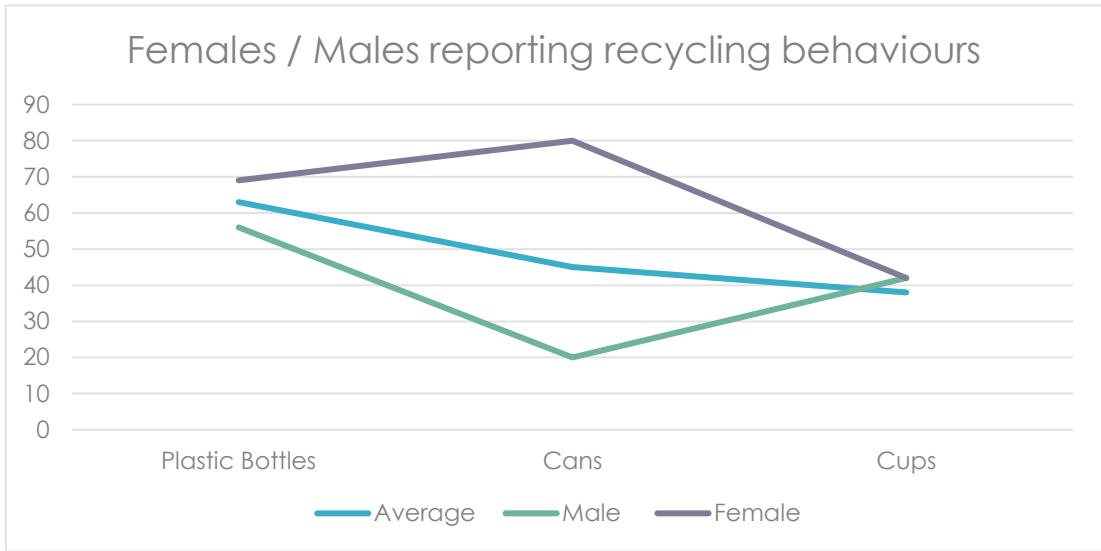
Of the 38% who recycled the cup, 55% said that it was the right thing to do with the majority of respondents being in the 18-24 age bracket and no reported recycling from any age bracket over 50.

Males and females were equally likely to report recycling coffee cups (42% respectively)

### Cans

12% reported disposing of cans whilst out and about. 54% reported putting this in a general waste bin and 45% reported using an on-street recycling bin. Again, the motivation for recycling was that it was the right thing to do with 67% of recycling behaviours reported from the lowest age bracket (18-24). 77% of those who used the general waste bin said there wasn't a recycling bin nearby.

Females were significantly likely to report recycling in this area (80% compared to 20%)



## Post-Launch Survey Analysis

The collection of responses for the post-launch period was hindered significantly by a long period of bad weather. Despite officers returning to the High Street on a number of occasions, the persistent bout of storms continued and dramatically hindered footfall and collection numbers.

Of the 106 responses collected, the majority were young people (36.54%) aged between 18-24 with a roughly even female to male gender split (52% and 48% respectively).

59% noted that they had seen 'The Wave' installation and of those, 70% indicated that it had made them think more about recycling when out and about. Of those respondents who said that they had seen something about recycling, 100% of them indicated that they had recycled the item that they had disposed of. However, none of them cited that as being the motivation for their behaviour (the majority, 62% cited that it was the right thing to do).

When asked if they had noted anything which promoted waste recycling when out and about, 69% indicated that they had notice the coloured recycling bins. 11% mentioned the art installation and a similar percentage had noted something in the press or social media.

Compared to the pre-survey analysis, people appeared to score themselves higher (predominantly a 5) when asked about how well they recycle both in and out of the home. The average self -scoring for recycling behaviours in the home was 4 for in the home and out and about (with 5 being the highest and 1 being the lowest).

### Reported recycling behaviours at home and out and about

PRE-campaign survey			POST-Campaign Survey		
	At -Home (182)	Out and about (165)		At home (108)	Out and about (107)
<b>1</b>	1.65%	4.24%	<b>1</b>	2.77%	2.80%
<b>2</b>	3.86%	11.51%	<b>2</b>	2.77%	4.67%
<b>3</b>	12.70%	35.15%	<b>3</b>	13.8%	21.49%
<b>4</b>	30.93%	14.54%	<b>4</b>	23.14%	3.73%
<b>5</b>	<b>51.38%</b>	<b>34.54%</b>	<b>5</b>	<b>57.40%</b>	<b>59.81%</b>
				<b>6.02% Increase</b>	<b>25.27% Increase</b>

Pre-Survey	Post -survey	Increase
Reported recycling behaviour overall: 22.94%	Reported recycling behaviour overall: 38.65%	<b>15.74%</b>
Plastic bottles		
62.86% (on street) 0 at home/ other	70% (47.5% street/ 5% at home/ 17.5% other e.g. Workplace)	<b>7.14% increase</b>
Coffee cups		
39.13% / 0 at home/ other	59% (54.55% on street/ 4.5% at home)	<b>19.87% increase</b>
Cans		
46.15% / 0 at home/ other	83.34% (66.67% street / 16.67% home)	<b>37.19% increase</b>

Similarly, to the previous survey, a very small percentage of respondents indicated that they took items home to recycle. 47% of those who had bought plastic bottle said they had disposed of it in an on-street recycling bin, 67% for cans and 54% for cups. Of those who had put it in the general rubbish bin (25% for bottles, 38% for coffee cups and 16% for cans) 71% of people said that they did so because there was not a recycling bin nearby.

Cup recycling appears to have caused some confusion as the cited reason by some for not recycling their cups was that there was 'no cup bin about' or 'there was no option for cups'. This may serve as caution in regard to separation of cups for recycling as people may well opt for general bins if no specific facilities are provided.

A similar age pattern to the pre-survey analysis was also observed with an overwhelming amount of under-30's using recycling facilities either on street or at work. Of this age group, the percentage of respondents who claimed to have recycled their items rose to 50% for plastic bottles and 100% for cans but only 37% for cups.

Overwhelmingly, 57% of people said that their motivation to recycle was that it was 'the right thing to do' (this rose to 69% in the over-50's age group), 13% cited environmental issues and 11% said they did so out of habit. Again, environmental reasons were cited by a slightly higher percentage by the under-30 age group (17%).

