MCS response to the Deposit return system – call for evidence.

The Marine Conservation Society (MCS) strongly supports the introduction of a Deposit return system (DRS) in Scotland. Litter surveys show that drinks containers can make up to 14% of litter on Scottish beaches and over 20% on land. Studies have proven that a DRS can reduce the volume of littered drinks containers, lead to increases in overall recycling, change behaviour and would contribute to the circular economy and a zero waste strategy.

Introduction

The Marine Conservation Society (MCS) has been supportive of a Deposit return system (DRS) for some time and commend the Scottish Government and Zero Waste Scotland for their pilot work. We hope that a Deposit return system can be rolled out across Scotland leading to measurable reductions in litter, including marine litter, as already recorded in places as varied as Germany, the USA and South Australia. We believe the greatest increase in recycling and change in behaviour would be obtained by introducing a DRS on all drinks containers, plastic, aluminium, glass and potentially tetrapaks.

Legislative drivers

A Deposit return system would contribute to the Scottish Marine Litter Strategy and support Scotland and the UK in reaching Good Environmental Status under the Marine Strategy Framework Directive (MSFD). Marine Litter is one of the eleven descriptors of the MSFD in which all EU states have to reach Good Environmental status by 2020.

A reduction in drinks containers in the general waste stream would also contribute to the reduction targets of the Landfill Directive and the reuse and recycling targets within the Waste Directive.

The recent G7 summit, which considered actions needed to combat marine litter, declared that an important tool was 'Promoting relevant instruments and incentives to reduce the use of disposable single-use and other items, which impact the marine environment'.[(1)]

Quantity of drinks related litter items

For over 20 years MCS has run Beachwatch, a programme to collect and record beach litter, using the data on sources and frequently found items to tackle litter at source. In that time beach litter levels have increased by 135% and plastic litter by 180%. Plastic bottles and tops and metal drinks cans have always been in the top 20 items collected.[(2)]

Plastic bottles and their associated tops together with aluminium drinks cans are some of the most obvious pieces of litter to be found as beach litter. During the 2014 Great British Beach Clean, 7,672 plastic drinks bottles and 14,750 caps and lids were found together with 5,015 aluminium drinks cans, see table 1. Plastic drinks bottles accounted for 2.8% of all litter and had a density of 69 items/km. Caps and lids accounted for 5.4% of total litter with an average density of 132 items/km. Cans accounted for 1.8% of litter with a density of 45 items/km.

In Scotland during the 2014 Great British Beach Clean, 986 plastic drinks bottles and 867 caps and lids were found together with 474 aluminium drinks cans, see table 2. Plastic drinks bottles accounted for 3.64% of all litter and had a density of 65 items/km. Caps and lids accounted for 3.2% of total litter with an average density of 58 items/km. Cans accounted for 1.75% of litter with a density of 31items/km.

In total, over the last five years plastic bottles, plastic bottle tops and aluminium drinks cans have contributed between 8% and 14% of beach litter in Scotland, see table 3.

See Appendix 1 for UK total figures.

Table 1. UK wide figures for 2014

In 2014, during the September Great British Beach Clean, MCS volunteers found on UK beaches:

Material category & item	Total number collected	% of total litter	Items/km
Plastic drinks bottles	7672	2.80	68.87
Plastic caps / lids	14750	5.39	132.42
Metal drinks cans	5015	1.83	45.02
Glass bottles	1111	0.4	10.0
Totals	**28548**	**10.41**	**256.29**

Table 2. Scotland specific figures for 2014

In 2014, during the September Great British Beach Clean, MCS volunteers found on Scottish beaches:

Material category & Item	Total number collected	% of total litter	Items/km
Plastic drinks bottles	986	3.64	65.65
Plastic caps / lids	867	3.20	57.72
Metal drinks cans	474	1.75	31.55
Glass bottles	132	0.49	8.79
Totals	**2459**	**9.07**	**163.71**

Table 3. Scotland specific figures 2010 – 2014

From 2010 to 2014 during the September Great British Beach Clean, MCS volunteers found on Scottish beaches:

Scotland	2010	2011	2012	2013	2014
Plastic bottles total	2665	1615	1268	1954	986
Plastic bottles %	5.38	7.16	5.35	5.37	3.64
Plastic bottles/km	126.18	109.86	106.10	105.5	65.65
Plastic caps & lids total	2009	995	931	1190	867
Plastic caps & lids %	4.05	4.41	3.93	3.27	3.20
Plastic caps & lids/km	95.12	67.68	77.90	64.25	57.72
Metal drinks cans total	431	709	616	715	474

Metal drinks cans %	0.87	3.14	2.60	1.96	1.75
Metal drinks cans/km	20.40	48.23	51.55	38.60	31.55
Glass bottles total	379	132	124	169	132
Glass bottles %	0.76	0.58	0.52	0.46	0.49
Glass bottles/km	17.94	8.98	10.37	9.07	8.79
All total	**5484**	**3451**	**2939**	**4028**	**2459**
All %	**11.07**	**15.26**	**12.41**	**10.52**	**9.08**
All/km	**259.65**	**234.76**	**245.93**	**217.43**	**163.69**

The Industry Council For Research On Packaging And The Environment (Incpen) figures show that in Scotland drinks cans and plastic bottles make up over 20% of land litter if cigarette ends and gum and gum staining are discounted.(3) This is the percentage by number of items so by volume this would be a greater proportion. As bottles and cans are highly visible items of the waste stream, removing these through a DRS would reduce the 'litter breeds litter' problem and would also decrease the burden upon local authorities of emptying public bins so often, as these items are bulky and take up large amounts of room in litter bins.

Extent and effects of marine litter

Marine litter knows no boundaries and can be carried around the world's oceans by winds and currents for many years. Litter can be found on every beach in the world, even those on remote and uninhabited islands. The concentration of litter in oceanic gyres leads to so called 'garbage patches' in the worlds oceans, made up of a dilute soup of broken down items as well as floating items of litter.

A study of the distribution and abundance of large marine debris on continental shelves and slopes in European seas recorded concentrations up to 101,000 pieces of debris per km^2.(4) At most sample stations, plastic (mainly bags and bottles) accounted for more than 70% of the total debris.

Coastal communities, many of which rely on the marine environment for their livelihood through tourism, fishing and recreational water sports, continue to pay the price for marine and coastal litter. Revenue is lost through spoilt fish catches, lost tourism income and damage to property. Local authorities, and

ultimately taxpayers, bear the huge financial burden of clearing litter from UK beaches. It has been calculated that the UK spends approximately €18 million removing beach litter every year[5].

Once in the ocean and seas it is almost impossible to retrieve items before they start breaking down. It is imperative that we put in place such actions such as deposit return systems to stop litter ever getting to the sea.

Once at sea, items break down only very slowly, glass takes an indefinite time and aluminium cans about 200 years. Plastic items, in particular, persist in the marine environment, bottles and caps taking between 450 and 1000yrs to slowly break down.[7] They then add to the problem of small plastic pieces and, eventually, microplastics.[8] Microplastics are of particular concern as it is know that they can concentrate toxins on their surface which can be ingested by all forms of marine life. There is the potential that these toxins could be passed and concentrated up the food web to humans as seafood consumers.

Recycling and drinks container rates

Recycling rates in the UK are now increasing only very slowly and we lag behind our EU neighbours. Clearly further actions and incentives are needed.

Studies from around the world have shown that a DRS increases recycling and leads to a reduction in litter over all.[6]

- The container return rates in European deposit systems are generally very high, and collection rates of up to 90-95% of containers can be achieved.[9]
- In 2014 the Ocean Conservancy, which runs the International Coastal Cleanup, figures showed that along 23 km of beach in Germany which has a DRS 552 drinks containers were found (160 plastic bottles, 304 glass bottles, 88 cans) compared to 8,295 along 25km of coastline in Spain which does not have a DRS (2,940 plastic bottles, 1,468 glass bottles and 3,887 cans).
- A clean-up lead by the Danish Society for Nature Conservation collected 154,389 cans. Only 7,989 (5%) were deposit-bearing cans, the rest were foreign cans not part of the Danish deposit scheme. [9]
- South Australia, which has a DRS, has the lowest rate of drinks container litter in Australia. Only 2.2% of litter in South Australia is made up of drinks containers compared to 13.2% in Western Australia which has no DRS. In New South Wales, which does not have a DRS, containers make

up one item for every three items of litter, compared to one item in for every 12 items of litter in South Australia.[10]

- US states that have a DRS have shown significant reductions in drinks containers in the general litter stream. Hawaii, for example, saw a 60 percent reduction in beverage containers as a percentage of total litter between 2005 (the year the beverage deposit program was implemented) and 2008.[11]
- A report for the State of Maryland by the University of Maryland Environmental Finance Center (EFC) concluded that that 'litter is a significant and costly problem in the state of Maryland, and that litter reduction would be a primary benefit of a beverage container deposit program.'[12]
- In several US states the introduction of a DRS decreased the prevalence of drinks containers in total litter by up to 70% and 80% and reduced littering itself by 30% to 40%.[13]

Behaviour change

Deposit return systems give a value to an item which is often regarded as having nil value, and therefore is often disposed irresponsibly. Changing behaviour and perception of single use items is a significant step towards achieving increased recycling and a circular economy.

A DRS would help to incentivise groups such as teens and young adults that are known to be reluctant recyclers as there would be a financial incentive involved, making it more beneficial to do the right thing.

A DRS also brings into play producer responsibility and makes the actual users and producers of drinks containers more responsible for their correct disposal and recycling.

Despite large investment during the last 20 years anti – littering campaigns have so far largely failed to have any significant effect on litter levels. Intuitively it seems likely that most people who are going to recycle on a voluntary basis are already doing so. Further actions such as fines or incentives are now needed to encourage those that are not 'natural recyclers' to take part. A financial incentive to return a waste item is an ideal way to change behaviour, reduce littering and contribute further to the circular economy and Zero Waste aspirations of the Scottish Government.

Results from a pilot project in Cadaqués showed that after only 2.5 months 9 out of 10 containers bearing a deposit were being recycled.[14]

MCS is not aware of any evidence for any other system that could bring about such an increase in recycling and change in behaviour over a relatively short time period.

Revenue implications

Litter costs local authorities, and ultimately the tax payer, millions of pounds every year in basic clean up costs. The value of disamenity costs associated with drinks containers litter is estimated to be around £205m per annum.[15]

Studies have shown that far from losing revenue due to reduced material stream collection, a DRS can actually save Local Authorities money through reduced operating costs and logistics as well as reducing Greenhouse gas emissions as a significant percentage of low density, bulky material no longer needs to be collected at the kerbside.[13] Material would also be diverted away from landfill helping to reduce landfill costs and fulfil Landfill Directive targets. Equally, as a well designed system would take away empty and crushed containers when delivering full containers, no extra journeys or greenhouse emissions would be created.

Advantages for the recycling industry

The problem of dirty and contaminated recyclate is often a problem for the recycling industry; plastics recyclers in particular. A DRS would deliver the cleanest and most uncontaminated product possible for the recycling industry. Coca Cola has also recently announced its intention to increase the use of recyclate in their bottles. Again, a DRS would deliver this extra recyclate needed.[16]

Conclusions

The results of the recent pilot system in Scotland have shown a powerful case and support for rolling out the system throughout Scotland. Earlier research has also highlighted the feasibility of introducing deposit or bottle refund systems in the UK. The systems examined were shown to bring a number of benefits including increased recycling, reduced costs, reduced littering and job creation.**[13,17]** The expected reduction in disamenity impacts alone significantly outweighs the costs, and with the additional benefit of reduced environmental impacts there is a clear net benefit.**[17]** Deposit return systems in operation in other European countries and U.S. states have demonstrated significant reductions in littering.[18]

The introduction of a Deposit return system would lead to a significant reduction in land and beach litter as well as a change in recycling behaviour. A Deposit return system would also contribute to the Scottish Marine Litter Strategy and support the UK in reaching Good Environmental Status under the Marine Strategy Framework Directive. We would also expect the success of such a system to encourage the other UK nations to bring in Deposit return systems, ultimately resulting in a nation wide system.

Appendix 1

UK figures 2010 – 2014

From 2010 to 2014 during the September Great British Beach Clean, MCS volunteers found on UK beaches:

UK	2010	2011	2012	2013	2014
Plastic bottles total	13509	11,223	7,000	7,395	7,672
Plastic bottles %	4.1	4.5	3.8	3.3	2.8
Plastic bottles/km	80.6	78.9	77.2	76.4	68.87
Plastic caps & lids total	21204	15448	9776	14376	14750
Plastic caps & lids %	6.4	6.2	5.4	6.4	5.4
Plastic caps & lids/km	126.5	108.5	107.8	148.6	132.4
Metal drinks cans total	7576	5624	3947	4227	5015
Metal drinks cans %	2.3	2.3	2.2	1.9	1.8
Metal drinks cans/km	45.2	39.5	43.5	43.7	45
Glass bottles total	1273	1079	977	973	1111
Glass bottles %	0.39	0.44	0.54	0.44	0.41
Glass bottles/km	7.60	7.58	10.78	10.06	10.0
All total	**43562**	**33374**	**21700**	**26971**	**28548**
All %	**13.19**	**13.46**	**11.92**	**12.12**	**10.43**
All/km	**259.92**	**234.53**	**234.54**	**278.91**	**256.29**

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