

2. METHODS

2.1 Litter Survey

The Marine Conservation Society (MCS) Beachwatch Big Weekend 2010 litter survey and beach clean up took place over the weekend of 18th and 19th September 2010. The survey was restricted to this timeframe to reduce the effect of environmental variables such as wind direction, tides and storm patterns, and to coincide with the International Coastal Cleanup organised by the Ocean Conservancy in the United States.

Each litter survey was organised by a volunteer MCS Beachwatch Big Weekend organiser, who had been sent an organiser pack (appendix A) in advance, giving full details of any preparatory action that was needed, survey methodology and health and safety guidelines, along with the survey form (appendix B) to be completed and returned to MCS with the data collected. Individual organisers selected the beach they wished to clean and survey, taking into account factors such as health and safety, and access to the beach. The beaches could be composed of sand, shingle, rock or a combination of these, but organisers were advised against surveying areas of mud flats for safety reasons. The beaches surveyed included popular tourist resorts, rural coastal stretches and nature reserves.

The survey was carried out by volunteers who were fully briefed in the survey methodology and safety issues, and were supervised by the organiser. Organisers were requested to carry out the survey 1-2 hours after high tide along a stretch of beach a minimum 100m in length (or less if the total beach length was less than 100m). Litter was recorded between the current high water mark (along the strandline) and the upper edge of the usable part of the beach (e.g. up to the edge of the sand dunes, sea wall or promenade). Time permitting, the survey could be continued further, if the organisers so wished, as long as the total length of beach surveyed was recorded.

Each piece of litter on the measured area of beach was removed and recorded on standardised data sheets, categorising the items according to material type (such as plastics, metal, sanitary, etc.) and, in most instances, exact identity (e.g. bottle, crisp packet, cotton bud stick, etc.). Details of any items that were identifiably foreign or traceable to particular countries or companies were also recorded. Observations of dead, entangled or stranded animals were noted and the relevant authorities notified. MCS Beachwatch Big Weekend volunteers followed strict guidelines for ensuring the accuracy of data recording and were asked not to remove any natural debris, such as seaweed and driftwood. All litter, once recorded and weighed, was left at a collection point for appropriate disposal (and recycling where possible).

The organiser recorded the start and finish time of the survey, total number of litter items in each material category, total number of bags and, if possible, weight of litter, length and width of beach surveyed and the number of volunteers on the Beachwatch survey form (appendix B), which was then returned to MCS within four weeks of the survey for collation and analysis of the data.

2.2 Data Analysis

Analysis of the data was carried out according to both material type and probable source. Litter items were assigned to the sources shown in table 3.

Table 3: Categorisation of litter types according to their likely source

Public Litter:	4/6 pack yokes, plastic bags (including supermarket), plastic drinks bottles, cleaning bottles, plastic food containers, plastic toiletries bottles, plastic caps / lids, cigarette lighters / tobacco pouches, combs / hair brushes / sunglasses, crisp / sweet / lolly / sandwich wrappers, cutlery / trays / straws / cups, pens, plastic shoes / sandals, shotgun cartridges, toys / party poppers / fireworks / dummies, polystyrene fast food containers / cups, balloons / balloon string, clothing / shoes / beach towels, disposable barbecues, metal bottle caps, metal drink cans, foil wrappers, household batteries*, animal faeces in bags*, animal faeces not in bags*, paper bags, cartons / tetrapaks (e.g. juice)*, cigarette packets, cigarette stubs, paper cups, newspapers / magazines, corks, ice lolly sticks / chip forks, glass bottles, glass pieces.
Fishing:	Fish boxes, fishing line, fishing net and net pieces <50cm, fishing net and net pieces >50cm, floats (fishing buoys) / reels, plastic lobster / crab pots and tops*, rope / cord / string, polystyrene buoys, polystyrene fish boxes, rubber boots, heavy duty gloves, tyres with holes/rope, fishing weights / hooks / lures, metal lobster / crab pots and tops*, wood lobster / crab pots and tops*.
SRD:	Condoms, cotton bud sticks, nappies, tampon applicators / tampons, toilet fresheners, towels / panty liners / plastic backing strips, wet wipes, other sanitary items.
Shipping:	Plastic cleaner bottles, foreign plastic bottles, plastic oil bottles, industrial packaging / crates / sheeting, mesh bags (e.g. vegetable), strapping bands, aerosol cans, metal food cans, oil drums, milk cartons/tetrapaks, pallets / crates, light bulbs / tubes.
Fly Tipped:	Traffic cones, tyres without holes / wheels, cloth furnishings, car parts / car batteries, scrap metal / appliances / paint tins, pottery / ceramic.
Medical:	Inhalers, plasters, syringes, other medical items.
Non-Sourced:	Plastic pieces <2.5cm, plastic pieces >2.5cm, other plastics, fibreglass, foam / sponge / insulation, polystyrene packaging, polystyrene pieces <50cm, other polystyrene items, light weight gloves, rubber pieces <50cm, other rubber items, cloth pieces, sacking, other cloth items, wire / wire mesh / metal pieces, other metal items, cardboard, other paper items*, paint brushes, wood pieces (not twigs), other wood items.

* - New category for MCS Beachwatch 2009.

There were no new categories for MCS Beachwatch 2010 or description changes from MCS Beachwatch 2009.

A number of the litter items on the survey sheet for MCS Beachwatch Big Weekend 2009 have changed in comparison with the survey sheet used for MCS Beachwatch Big Weekend 2008 to incorporate categories used in OSPAR beach litter monitoring.

OSPAR is a regional grouping of fifteen Governments which cooperate to protect the marine environment of the North-East Atlantic. It started in 1972 with the Oslo Convention against dumping. It was broadened to cover land-based sources and the offshore industry by the Paris Convention of 1974. These two conventions were unified, up-dated and extended by the 1992 OSPAR Convention.

For the purposes of the regional analyses the UK was broken down into the following regions (for England), and countries: Scotland, Wales, Northern Ireland, the Channel Islands, North West England (the coastline between the Welsh and Scottish borders, and including the Isle of Man), North East England (the coastline between the Norfolk/Lincolnshire border and Scotland), South East England (including the coastlines of Norfolk, Suffolk, Essex, Kent, Sussex and Hampshire) and South West England (the coastline between the English/Welsh border to the Hampshire/Dorset border). No surveys were carried out in the Republic of Ireland.

2.3 Underwater Clean-ups

MCS in conjunction with Project AWARE (International) Foundation promoted underwater clean-ups as part of the MCS Beachwatch Big Weekend event and contribution to the International Coastal Clean up. Dive sites were surveyed and cleaned by trained divers, following the MCS Guide to Underwater Clean ups and guidelines issued by Project AWARE. Items were collected at the dive site, brought on shore and recorded on data sheets, in the same way as for the beach surveys. The results from underwater clean ups were analysed separately.

3. RESULTS

3.1 General Observations

A total of 376 beaches, covering 167.6 kilometres of coastline in England, Scotland, Wales, Northern Ireland and the Channel Islands were cleaned and surveyed by 4,927 volunteers. In total, over 10,579 volunteer hours were spent removing and recording 330,107 items of litter. A summary of the distance surveyed and number of volunteers participating on each beach surveyed is shown in appendix C.

Only data considered by MCS to be accurately recorded and gathered over the official MCS Beachwatch Big Weekend (and returned on time) was included in the data analysis. Survey forms received for an additional four beaches were therefore excluded from the analysis (appendix D).

Table 4: Summary of MCS Beachwatch Big Weekend 2010 litter survey and clean up results
(Percentages and items/km are recorded to 1 decimal place)

Beachwatch 2010 Summary	
Volunteers	4,927
Number of beaches surveyed	376
Total length surveyed (km)	167.6
Number of bags	3,058
% Public	37.4
% Fishing	15.3
% Sewage-related debris (SRD)*	7.3
% Shipping	1.8
% Fly tipped	1.0
% Medical	0.3
% Non-sourced	37.1
Total number of items	330,107
Total volunteer hours	10,579
Mean items/km	1,969.7

*If data from three beaches where over 9,433 cotton bud sticks were recorded are removed, the percentage for SRD is 2.9%.

3.2 Comparisons with Results from Previous Years

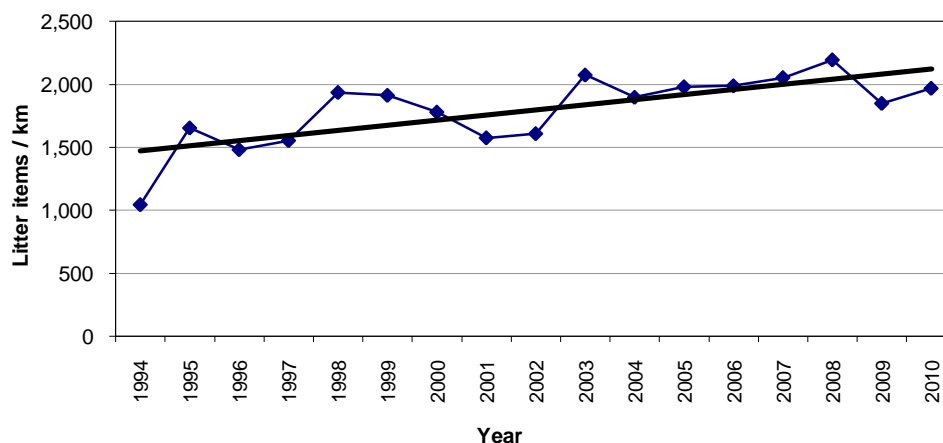
A total of 167.6km of coastline was surveyed in 2010 (table 5), 17.4km less than in 2009 (185.0 km). The average number of litter items found per km surveyed during the MCS Beachwatch Big Weekend 2010 (1,969 items/km) has increased by 6.5% compared to the MCS Beachwatch Big Weekend 2009 (1,849 items/km). MCS Beachwatch Big Weekend 2010 results provide a snapshot of the litter found on UK beaches over one weekend.

Table 5: Comparison of results from MCS Beachwatch Big Weekend 1994 – 2010.

Year	Number of Beaches Surveyed	Total Length Surveyed (km)	Total Number of Items	Items/km
1994	173	204.0	197,346	1,045
1995	202	193.0	305,741	1,654
1996	203	196.0	291,228	1,482
1997	210	168.8	262,349	1,554
1998	257	166.7	322,751	1,936
1999	171	91.8	175,560	1,913
2000	150	104.2	185,482	1,780
2001	194	141.3	222,704	1,576
2002	229	150.0	241,285	1,609
2003	244	134.8	279,847	2,075
2004	269	145.2	275,594	1,897
2005	332	170.7	338,196	1,981
2006	358	187.6	373,048	1,989
2007	354	168.5	346,054	2,054
2008	374	175.7	385,659	2,195
2009	397	185.0	342,151	1,849
2010	376	167.6	330,107	1,969

Overall there has been an increase of 88.5% in the average density of beach litter on surveyed UK beaches compared to figures for the MCS Beachwatch Big Weekend 1994 (1,045 items/km). Figure 1 effectively illustrates beach litter levels have been steadily increasing since 1994, despite yearly variations.

Figure 1: Mean items of litter/km surveyed recorded in MCS Beachwatch Big Weekend surveys 1994- 2010



3.3 Top 20 Litter Items

The 20 most common items found during the MCS Beachwatch Big Weekend 2010 (table 6) comprise 80.7% of the total items found. Towels/panty liners/backing strips are new to the top 20 for Beachwatch 2010 when compared to 2009 and have increased in position considerably from 32 to 19. The position of some litter items have changed appreciably. In particular, cotton bud sticks have increased from ninth position to seventh; whilst cigarette stubs have dropped in position from ten in 2009 to fifteen in 2010.

The majority of the top 10 items are made of plastic. Small plastic pieces were the number one item found on UK beaches again this year, and have been the number one item found during MCS Beachwatch Big Weekend surveys consecutively since 1998.

Table 6: Top 20 litter items recorded in Beachwatch Big Weekend 2010.

Position in 2009	Position in 2010	Litter Item	% of Total Litter	Items/km
1	1	Plastic pieces <2.5cm	11.7	231.3
2	2	Plastic pieces >2.5cm	10.4	204.0
4	3	Plastic rope/cord/string	7.1	140.2
5	4	Plastic caps/lids	6.4	126.5
3	5	Crisp/sweet/lolly wrappers	6.0	119.0
6	6	Polystyrene pieces	5.8	114.6
9	7	Cotton bud sticks	4.8	95.1
8	8	Fishing net and net pieces <50cm	4.4	87.1
7	9	Plastic drinks bottles	4.1	80.6
11	10	Glass pieces	3.3	64.4
TOP 10 ITEMS			64.1	1262.8
13	11	Fishing line (from anglers)	2.3	45.2
12	12	Metal drink cans	2.3	45.2
14	13	Plastic bags (including supermarket)	2.2	43.4
15	14	Plastic cutlery/trays/straws/cups	2.2	42.7
10	15	Cigarette stubs	1.5	29.2
17	16	Cloth pieces	1.4	27.8
16	17	Polystyrene foam/sponge/insulation	1.3	26.3
19	18	Wood pieces	1.2	23.2
32	19	Towels/panty liners/backing strips	1.1	22.5
18	20	Plastic food containers	1.1	21.9
TOP 20 ITEMS			80.7	1590.2

Table 7: Totals for all litter items recorded during MCS Beachwatch Big Weekend 2010

BW2010 Material Category & Item	% of Total Litter	Items/km	Total Number Collected	Material Category & Item	% of Total Litter	Items/km	Total Number Collected
Plastics	63.3	1246.7	208938	Metal	6.0	117.2	19648
4/6-pack yokes	0.1	1.9	312	Aerosol cans	0.2	3.3	546
Bags (including supermarket)	2.2	43.4	7273	BBQ (disposable)	0.1	1.1	184
Bottles				Bottle caps	1.1	21.4	3579
Drinks	4.1	80.6	13509	Car Parts/car batteries	0.1	1.0	172
Cleaner	0.2	3.1	522	Drink cans	2.3	45.2	7576
Food	1.1	21.9	3673	Fishing weights/ hooks/lures	0.1	1.8	294
Foreign	0.1	1.2	199	Foil wrappers	0.7	13.8	2316
Oil	0.1	1.2	198	Food cans	0.1	2.4	402
Toiletries	0.2	4.6	766	Lobster/crab pots/tops	0.0	0.4	69
Caps / lids	6.4	126.5	21204	Oil drums	0.0	0.1	23
Cigarette lighters/ tobacco pouches	0.4	7.9	1329	Scrap metal/appliances/paint tins	0.2	4.4	740
Combs / hair brushes/ sunglasses	0.1	1.4	231	Household batteries	0.1	1.1	185
Crisp/sweet/lolly wrappers/ sandwich wrappers	6.0	119.0	19950	Wire and wire mesh/metal pieces	0.7	14.6	2449
Cutlery / trays / straws/ cups	2.2	42.7	7154	Other (specify)	0.3	6.6	1113
Fish boxes	0.0	0.7	125	Medical	0.3	3.7	621
Fishing line	2.3	45.2	7578	Inhaler	0.0	0.3	54
Fishing net < 50cm	4.4	87.1	14600	Plasters	0.1	1.3	216
Fishing net > 50cm	0.9	18.4	3081	Syringes	0.1	1.1	179
Floats (Fishing/buoys) / Reels	0.1	1.9	322	Other (specify)	0.1	1.0	172
Industrial packaging/crates/sheeting	0.2	4.8	812	Sanitary	7.3	142.9	23954
Lobster/crab pots/tops	0.0	0.8	142	Condoms	0.0	0.9	149
Mesh bags e.g. vegetable	0.1	2.5	411	Cotton bud sticks	4.8	95.1	15938
Pens	0.3	5.6	938	Nappies	0.0	0.8	137
Rope/cord/string	7.1	140.2	23499	Tampon applicators/tampons	0.5	8.9	1487
Shoes / sandals	0.1	2.7	451	Toilet fresheners	0.0	0.5	83
Shotgun cartridges				Towels / panty liners / backing strips	1.1	22.5	3772
Strapping bands	0.7	14.3	2392	Wet wipes	0.6	11.6	1944
Toys/party poppers/fireworks/dummies	0.4	8.2	1372	Other (specify)	0.1	2.6	444
Traffic cones	0.0	0.8	139	Faeces	0.4	8.5	1428
Plastic pieces < 2.5cm	11.7	231.3	38760	In bags	0.2	4.2	708
Plastic pieces > 2.5cm	10.4	204.0	34183	Not in bags	0.2	4.3	720
Other Plastic	0.6	11.6	1951	Paper	3.7	72.2	12093
Polystyrene	9.0	177.3	29710	Bags	0.2	4.0	665
Buoys	0.0	0.6	94	Cardboard	0.3	6.9	1150
Fast food containers/cups	0.9	18.4	3088	Cartons/tetrapak (juice)	0.1	2.9	480
Fish boxes	0.0	0.5	85	Cartons/tetrapak (milk)	0.0	0.8	135
Fibreglass	0.1	1.7	277	Cigarette packets	0.2	4.4	732
Foam/sponge/insulation	1.3	26.3	4410	Cigarette stubs	1.5	29.2	4895
Packaging	0.5	10.6	1769	Cups	0.1	2.4	405
Polystyrene pieces	5.8	114.7	19215	Newspapers / magazine	0.3	6.7	1125
Other	0.2	4.6	772	Other (paper pieces removed)	0.8	15.0	2506
Rubber	1.8	35.2	5899	Wood	2.1	40.6	6801
Balloons/balloon string	0.4	8.8	1481	Corks	0.1	2.8	473
Boots	0.0	0.5	92	Lobster/crab pots/tops	0.0	0.1	20
Gloves (heavy duty)	0.1	1.8	301	Crates / pallets	0.0	0.5	87
Gloves (light weight)	0.1	1.8	309	Ice lolly sticks/chip forks	0.4	8.6	1448
Rubber Pieces <50cm	0.9	16.9	2825	Paint brushes	0.0	0.4	65
Tyres without holes	0.1	1.1	179	Wood pieces (not twigs)	1.2	23.2	3882
Tyres with holes	0.0	0.4	74	Other (specify)	0.3	4.9	826
Other	0.2	3.8	638	Glass	3.7	72.9	12214
Cloth	2.1	41.1	6893	Bottles	0.4	7.6	1273
Cloth pieces (string removed)	1.4	27.8	4654	Light bulbs / tubes	0.0	0.9	150
Clothing / shoes/ beach towels	0.4	8.3	1395	Glass pieces	3.3	64.4	10791
Furnishings	0.0	0.7	122	Pottery or ceramic	0.6	11.4	1908
Sacking	0.1	1.2	207	Any pottery or ceramic	0.6	11.4	1908
Other	0.2	3.1	515				

3.4 Materials and Litter Types

Table 7 displays 100 categories of litter items recorded during the MCS Beachwatch Big Weekend 2010. Compared to MCS Beachwatch Big Weekend 2009, 55 litter items increased and 38 items decreased in density (items/kilometre), whilst seven items remained the same. Compared to 2009, the majority of items have increased in items/km.

Items that have shown a notable increase from 2009 include:

- Plastic pieces >2.5 cm - 174.5 items/km in 2009 compared to 204.0 items/km in 2010
- Polystyrene pieces - 88.6 items/km in 2009 compared to 114.7 items/km in 2010
- Cotton bud sticks at 75.1 items/km in 2009 compared to 95.1 items/km in 2010.

Items that have shown a notable decrease from 2009 include:

- All paper items decreased
- Crisp/sweet/lolly wrappers have dropped from 132.2 items/km in 2009 to 119.0 in 2010

3.4.1 Specific Litter Items

Certain items of litter are of particular concern, either because of the large densities of these items on UK beaches or because of the hazard they pose to marine wildlife. Figures 2 to 10 illustrate the average density of particular litter items from 1996 to 2010. The graphs for plastic drinks bottles (figure 5) and fishing line (figure 7) do not show data from 1996 because these items were not recorded individually until after this date.

Figure 2: Plastic pieces sizes <2.5cm and >2.5cm recorded per km surveyed during MCS Beachwatch Big Weekends 1998 – 2010.

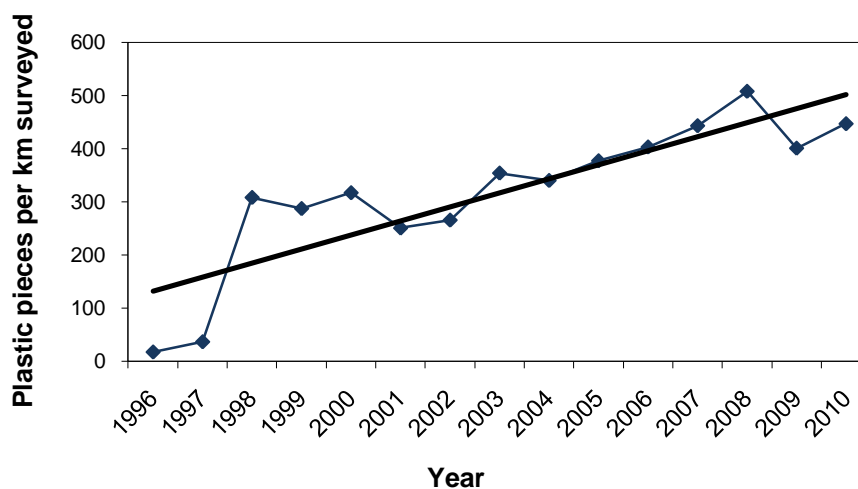


Figure 3: Plastic caps/lids recorded per km surveyed during MCS Beachwatch Big Weekends 1996 – 2010.

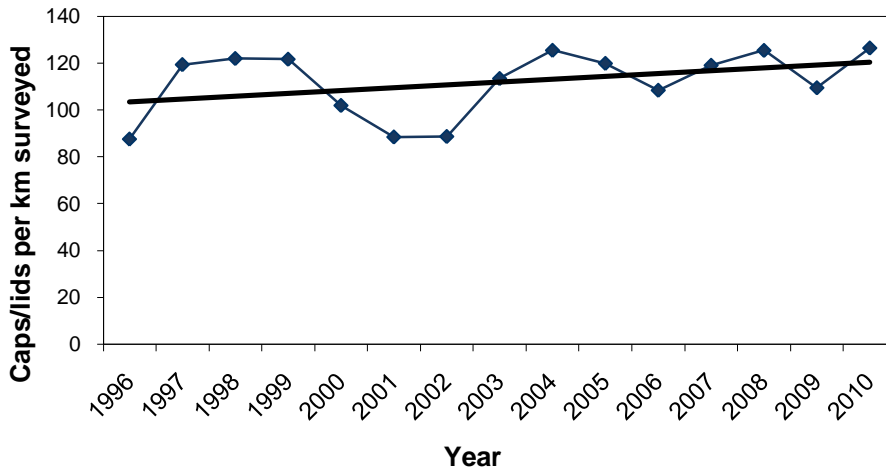


Figure 4: Cotton bud sticks recorded per km surveyed during MCS Beachwatch Big Weekends 1996 – 2010.

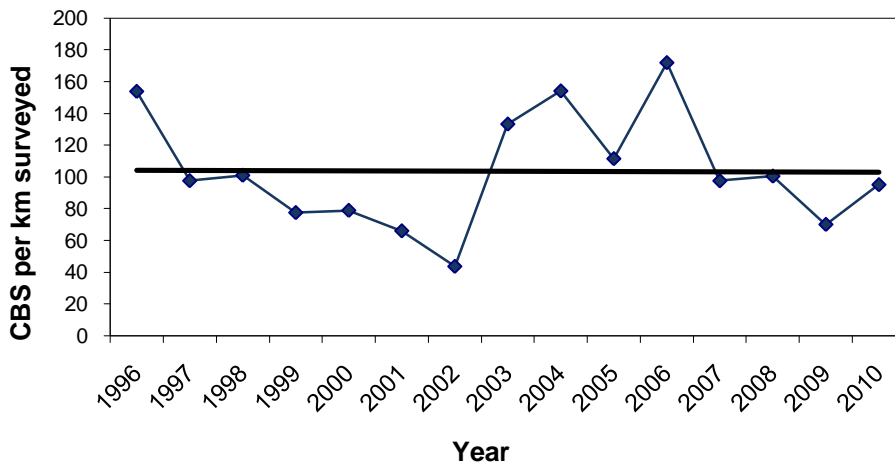


Figure 5: Plastic drinks bottles recorded per km surveyed during MCS Beachwatch Big Weekends 1997 – 2010.

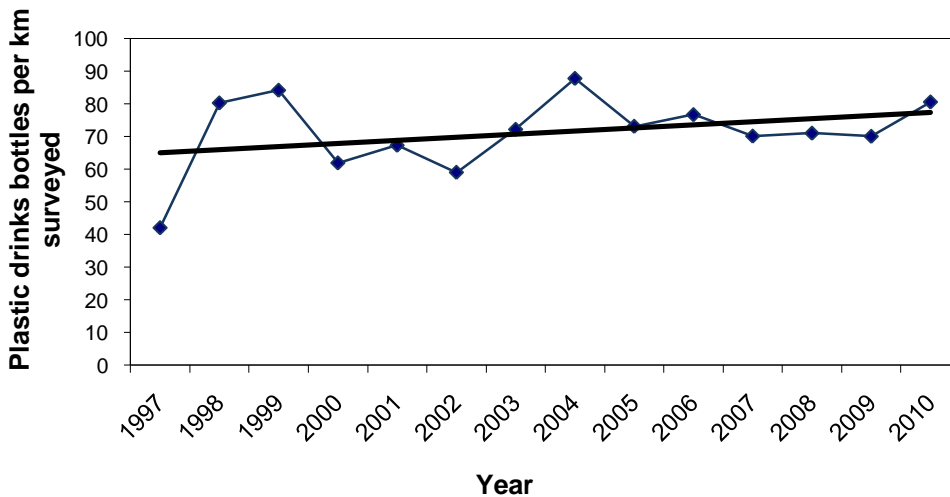


Figure 6: Cigarette stubs recorded per km surveyed during MCS Beachwatch Big Weekends 1996 – 2010.

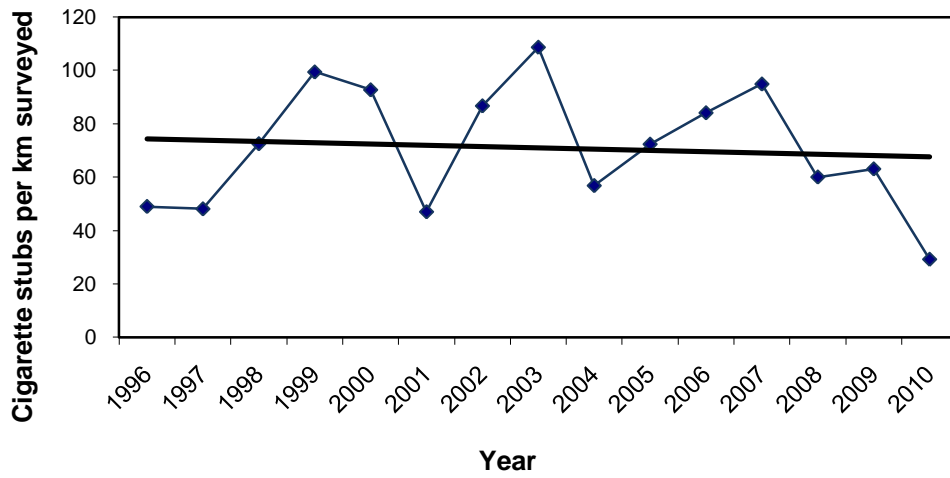


Figure 7: Fishing line recorded per km surveyed during MCS Beachwatch Big Weekends 1999-2010.

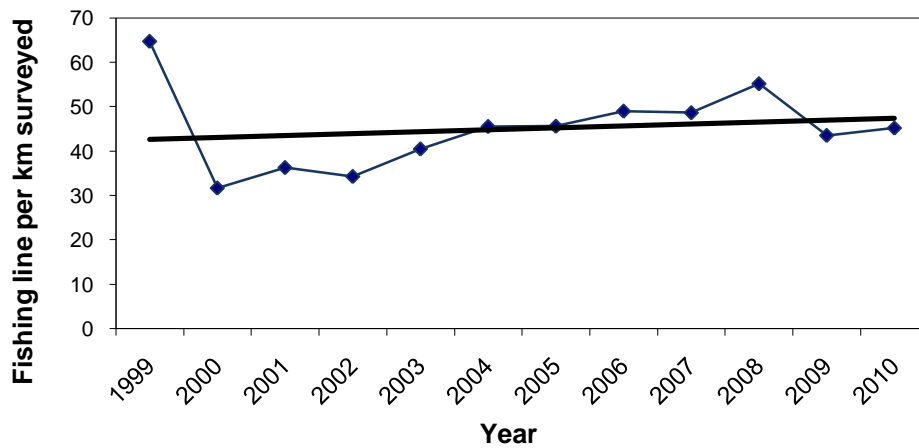


Figure 8: Plastic bags recorded per km surveyed during MCS Beachwatch Big Weekends 1996 – 2010.

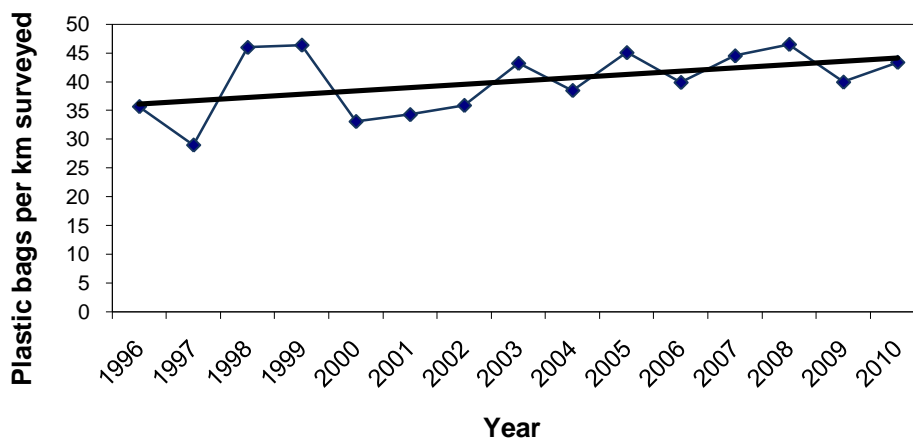


Figure 9: Fast food containers recorded per km surveyed during MCS Beachwatch Big Weekends 1996 – 2010.

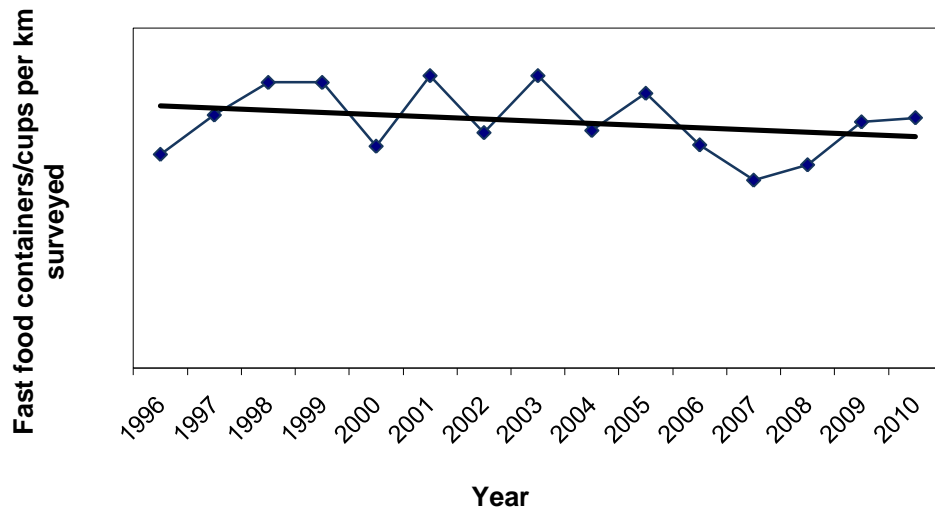
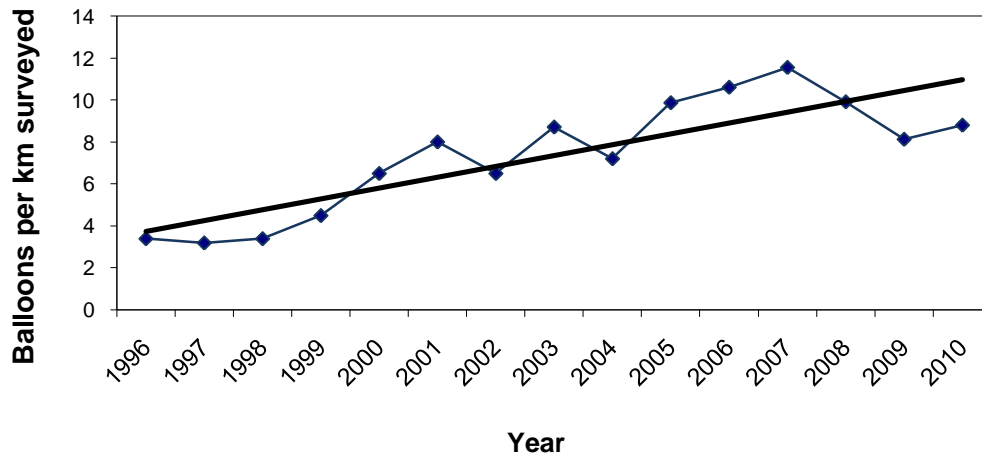


Figure 10: Balloons recorded per km surveyed during MCS Beachwatch Big Weekends 1996 – 2010.



3.4.2. Material types

The density of each material type found during the MCS Beachwatch Big Weekend 2010 is shown in table 8. As in previous years, plastic is the most common litter material found on UK beaches.

Eight material types have increased in density from 2009 (as opposed to only one increase in 2009 compared with 2008). Sanitary items showed the highest increase of over 40%.

Table 8: Material types recorded during MCS Beachwatch Big Weekend 2010.
(Percentages and items/km are recorded to 1 decimal place, listed in most common items first)

Material Category	% of Total Litter	Items/km	Total Number Collected
Plastics	63.3	1246.7	208,938
Polystyrene	9.0	177.3	29,710
Sanitary	7.3	142.9	23,954
Metal	6.0	117.2	19,648
Glass	3.7	72.9	12,214
Paper	3.7	72.2	12,093
Cloth	2.1	41.1	6,893
Wood	2.1	40.6	6,801
Rubber	1.8	35.2	5,899
Pottery & Ceramics	0.6	11.4	1,908
Faeces	0.4	8.5	1,428
Medical	0.2	3.7	621

3.4.3 Plastics

The percentage of plastic materials found on UK beaches still remains at over 60%. Plastic items represent 63.3% of all litter recorded during MCS Beachwatch Big Weekend 2010 (table 9), a slight decrease of 0.3% compared to 2009 but overall plastic items/km have increased by 135% since 1994. **Figure 11 illustrates the continual rise in plastic density since 1994.**

The density of plastic recorded has risen from 1174 items/km in 2009 to 1246 items/km in 2010.

The five most common plastic items have remained the same as in 2009 (plastic pieces <2.5cm, plastic pieces >2.5cm, crisp / sweet / lolly / sandwich wrappers, rope / cord / string and caps / lids) and are represented in the top 10 items (table 6). These five items represent 41% of all the plastic recorded, again the same as 2009.

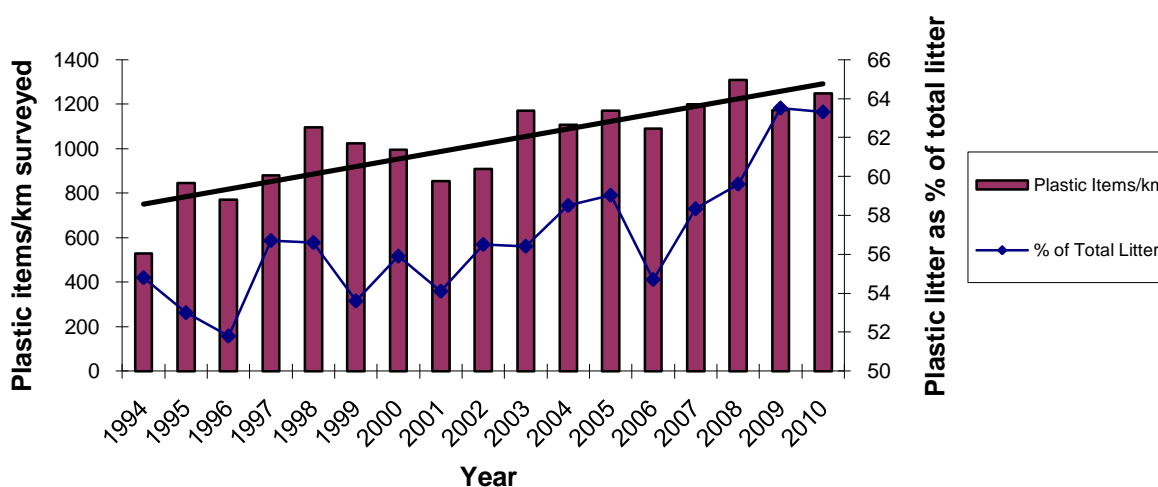
It should also be noted that most items of sewage-related debris are also entirely or partially made of plastic, and polystyrene can also be considered a form of plastic. This means that the overall percentage of beach litter caused by plastics is over 75%.

Table 9: Comparison of total plastic items recorded during MCS Beachwatch Big Weekends 1994 – 2010.

(Percentages and items/kilometre are recorded to 1 decimal place)

Year	Plastic Items/km	% of Total Litter
1994	530	54.8
1995	845.0	53
1996	770.0	51.8
1997	881.0	56.7
1998	1,095.1	56.6
1999	1,024.6	53.6
2000	995.4	55.9
2001	853.2	54.1
2002	908.6	56.5
2003	1,170.0	56.4
2004	1,106.7	58.5
2005	1,169.3	59.0
2006	1088.5	54.7
2007	1198.0	58.3
2008	1307.4	59.6
2009	1173.6	63.5
2010	1246.7	63.3

Figure 11: Plastic litter recorded during MCS Beachwatch Big Weekends 1994-2010.



3.5 Sources

Identifying the source of many litter items is a complex task as litter may reach a beach in a number of different ways. The sources of some items can be accurately identified, and may be attributed with a high level of confidence to one of six specific sources: public, fishing, sewage-related debris, shipping, fly tipped, or medical (table 10). A seventh category of non-sourced is used for items that are unidentifiable or could have come from a number of different sources.

3.5.1 Trends in Litter Sources

Table 10 shows the number of items, percentage of total litter and items per km in each sourced litter category for MCS Beachwatch Big Weekend surveys since 1995.

Table 10: Litter sources recorded in MCS Beachwatch Big Weekend surveys from 1995 to 2010.
(Percentages and items/kilometre are recorded to 1 decimal place)

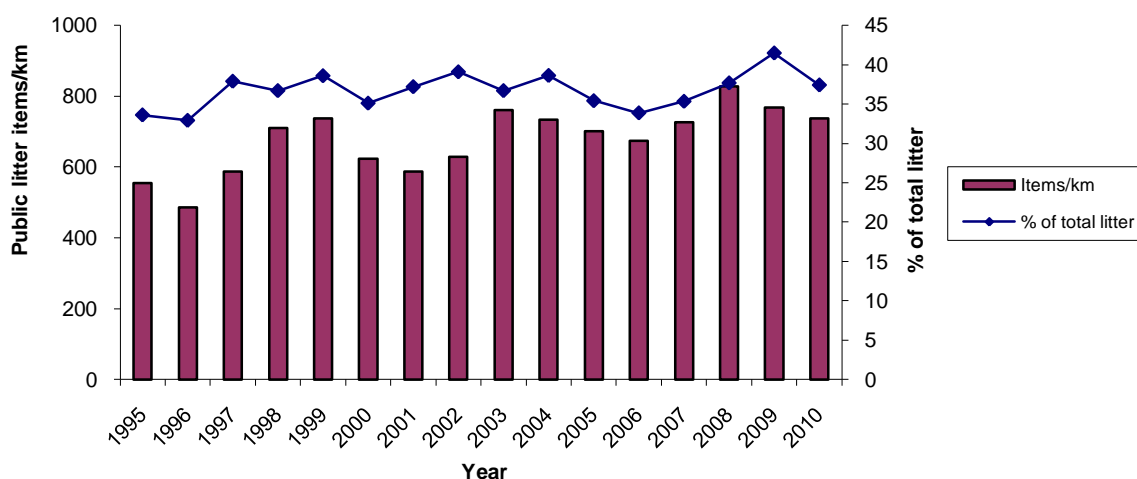
Source		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Public	No. of items	103,848	95,907	99,329	118,485	67,701	65,022	82,883	94,242	102,662	106,472	119,758	126,315	122,277	145,347	142,017	123,543
	% of total litter	33.6	32.9	37.9	36.7	38.6	35.1	37.2	39.1	36.7	38.6	35.4	33.9	35.3	37.7	41.5	37.4
	Items/km	555.3	486.8	587.7	709.5	737.8	624	586.6	628.3	761	733.0	701.5	673.4	725.7	827.3	767.6	737.2
Fishing	No. of items	36,240	36,467	30,434	43,422	19,727	23,081	27,208	35,209	40,956	38,748	49,356	41,863	47,352	53,203	51,669	50,376
	% of total litter	11.7	12.5	11.6	13.5	11.2	12.4	12.2	14.6	14.6	14.1	14.6	11.2	13.7	13.8	15.1	15.3
	Items/km	193.8	185.1	180.1	260	215	221.5	192.6	234.7	303.6	266.8	289.1	223.2	281.0	302.8	279.3	300.6
SRD	No. of items	37,742	39,240	22,215	23,846	11,350	12,117	14,960	9,402	21,751	25,749	24,451	38,622	21,178	23,869	18,661	23,954
	% of total litter	12.2	13.5	8.5	7.4	6.5	6.5	6.7	3.9	7.8	9.3	7.2	10.4	6.1	6.2	5.5	7.3
	Items/km	201.8	199.2	131.4	142.8	123.7	116.3	105.9	62.7	161.2	177.3	143.2	205.9	125.7	135.9	100.9	142.9
Shipping	No. of items	7,322	7,049	6,797	9,514	4,560	4,158	6,759	5,361	5,627	6,179	7,534	7,461	6,361	6,866	6,931	5877
	% of total litter	2.4	2.4	2.6	2.9	2.6	2.2	3	2.2	2	2.2	2.2	2.0	1.8	1.8	2.0	1.8
	Items/km	39.2	35.8	40.2	57	49.7	39.9	47.8	35.7	41.7	42.5	44.1	39.8	37.8	39.1	37.5	35.1
Fly-tipped	No. of items	2,802	3,167	2,594	4,235	2,930	1,276	1,990	2,642	2615	2,323	2,598	3,452	3,278	3,599	2,994	3260
	% of total litter	0.9	1.1	1	1.3	1.7	0.7	0.9	1.1	0.9	0.8	0.8	0.9	0.9	0.9	0.9	1.0
	Items/km	15	16.1	15.3	25.4	31.9	12.2	14.1	17.6	19.4	16.0	15.2	18.4	19.5	20.5	16.2	19.5
Medical	No. of items	233	214	215	294	205	266	264	341	294	324	675	591	637	700	569	621
	% of total litter	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
	Items/km	1.2	1.1	1.3	1.8	2.2	2.6	1.86	2.3	2.2	2.2	4.0	3.2	3.8	4.0	3.1	3.7
Non-sourced	No. of items	121,177	109,184	100,765	122,955	69,087	79,562	88,640	94,088	105,942	95,799	133,824	154,744	144,971	152,075	119,310	122,476
	% of total litter	39.2	37.5	38.4	38.1	39.4	42.9	39.8	39	37.9	34.8	39.6	41.5	41.9	39.4	34.9	37.1
	Items/km	648	554.2	596.2	736.3	753	763.6	627.3	627.3	785.3	659.6	783.9	824.9	860.4	865.6	644.9	730.79
Total		1,654	1,482	1,554	1,936	1,913	1,780	1,576	1,609	2,075	1,897	1,981	1,989	2,054	2,195	1,849	1969.7

3.5.2 Public Litter

Public litter includes items such as crisp, sweet and lolly wrappers, plastic drink bottles, cigarette stubs, ice lolly sticks, toys, golf balls, glass bottles and drinks cans, which may have been dropped directly on the beach or dropped elsewhere and washed or blown onto the beach or into the sea.

The percentage of public litter decreased from 41.5% in 2009 to 37.4% in 2010. The density of public litter has also decreased from 768 items/km in 2009 to 737.2 items/km in 2010 (table 10 and figure 12). However, as in previous MCS Beachwatch Big Weekend surveys public litter remains the highest proportion of sourced litter.

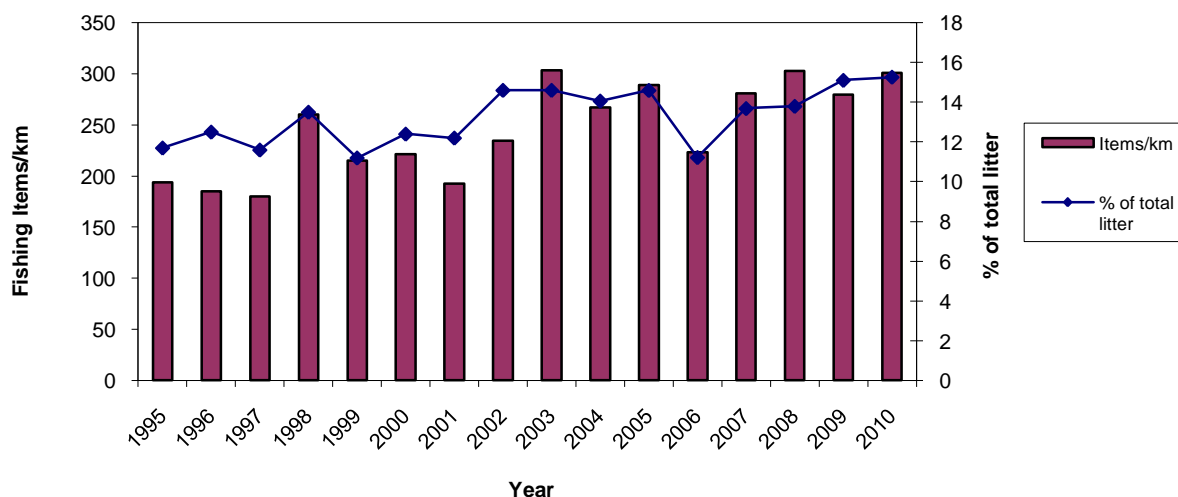
Figure 12: Public litter found during MCS Beachwatch Big Weekends 1995 – 2010.



3.5.3 Fishing Litter

Litter originating from fishing activities, both commercial and recreational, include items such as fishing line, rope / cord / string, net, buoys, floats and weights. The density of fishing litter has increased this year (300.6 items/kilometre) compared to 2009 (279.3 items/kilometre) but fishing litter remains the second largest recognisable source of litter on UK beaches surveyed, representing 15.3% of all litter (figure 13).

Figure 13: Fishing litter found during MCS Beachwatch Big Weekend 1995 – 2010.



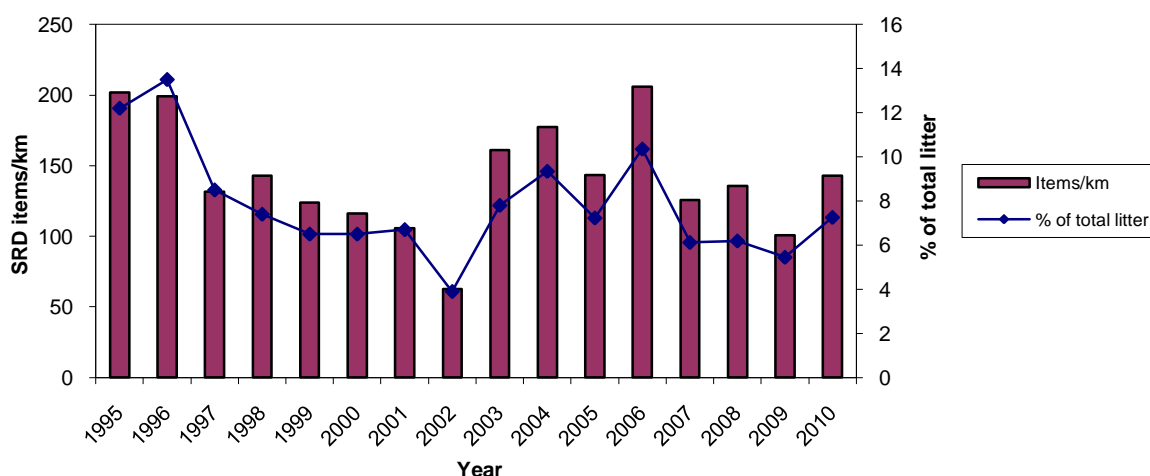
3.5.4 Sewage-Related Debris

Sewage-related debris (SRD), such as cotton bud sticks, tampon applicators / tampons and sanitary towels / panty liners can be sourced with confidence since the vast majority of these items have originated from the water companies' sewerage networks system. The density and percentage of total litter represented by SRD increased from 101 items/km (5.4%) in 2009 to 142.9 items/km (7.3%) in 2010 (figure 14).

As in previous years, the most common item of SRD was cotton bud sticks which accounted for 66.5% of SRD and 4.8% of all litter found in 2010. The average density of cotton bud sticks increased by 35.6% from 70.1 items/km in 2009 to 95.1 items/km in 2010.

SRD was analysed without the data from two beaches in Scotland (East Bay Helensburgh and Leven area 2) and Blyth in the North East as they were badly affected and to allow a comparison to 2009. When these three beaches are removed from analysis, cotton bud sticks continue to make up the majority of sewage related debris found (41.9 items/km in 2009 and 56.3 items/km in 2010). The density of SRD items - discounting cotton bud sticks - has also increased from 30.8 items/km in 2009 to 47.8 items/km in 2010.

Figure 14: SRD found during MCS Beachwatch Big Weekends 1995 – 2010.



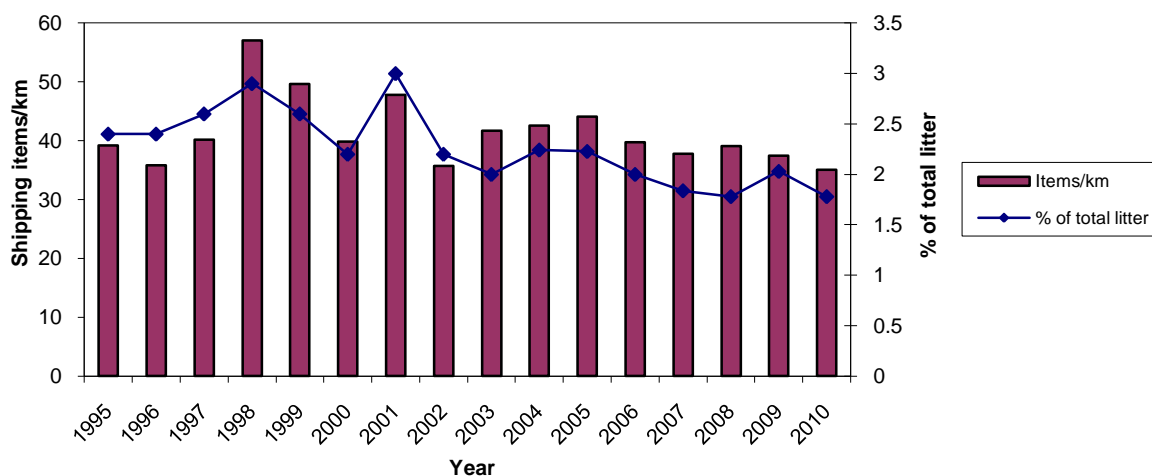
3.5.5 Shipping Litter

Litter from shipping includes oil drums, aerosol cans, crates, pallets and strapping bands. The number of shipping-related items found decreased slightly from 38 items/km in 2009 to 35 items/km in 2010 (figure 15). Shipping litter represented 1.8% of total litter found in 2010.

Reports from MCS Beachwatch Big Weekend organisers in certain locations - such as Shetland - suggest that some items usually categorised as 'non-sourced' or 'public' should be attributed to shipping litter.

In areas close to shipping lanes, levels of shipping litter are much greater. In the South West and Wales for example, the density of shipping litter found is much higher than the UK average (see table 12).

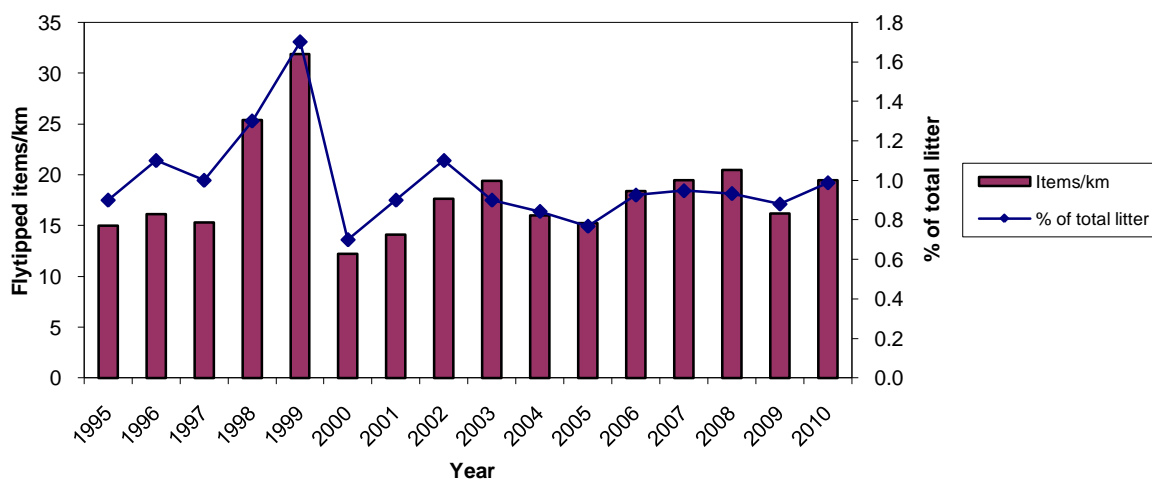
Figure 15: Shipping litter items found during MCS Beachwatch Big Weekends 1995 – 2010.



3.5.6 Fly Tipped Litter

Fly tipping accounts for a small proportion of litter recorded in MCS Beachwatch Big Weekend surveys and includes items such as industrial scrap, tyres and furnishings. However, many of these items are large and therefore have a significant aesthetic impact. The average density of fly tipped items has increased from 16.1 items/km in 2009 to 19.5 items/km in 2010. The percentage of total litter caused by fly tipping has increased from 0.9% in 2009 to 1.0% in 2010. (table 10 and figure 16).

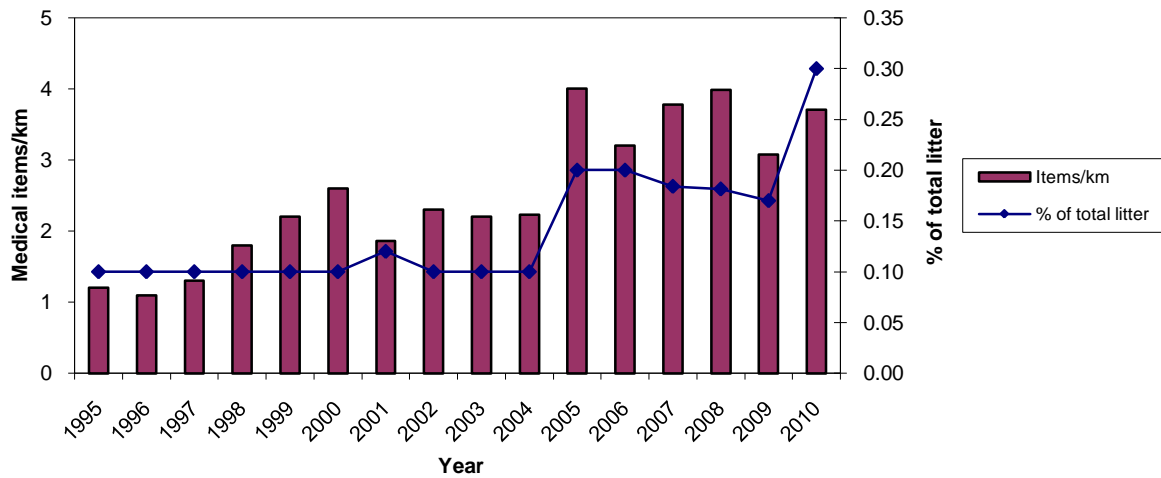
Figure 16: Fly Tipped litter found during MCS Beachwatch Big Weekends 1995 – 2010.



3.5.7 Medical Items

The density of medical litter items has increased from 3.1 items/km in 2009 to 3.7 items/km in 2010 (figure 17). Syringes are one of the most hazardous items collected and recorded during MCS Beachwatch Big Weekend surveys. A total of 179 syringes were recorded during MCS Beachwatch Big Weekend 2010, which is an increase from 2009 and an average of one found for every kilometre surveyed.

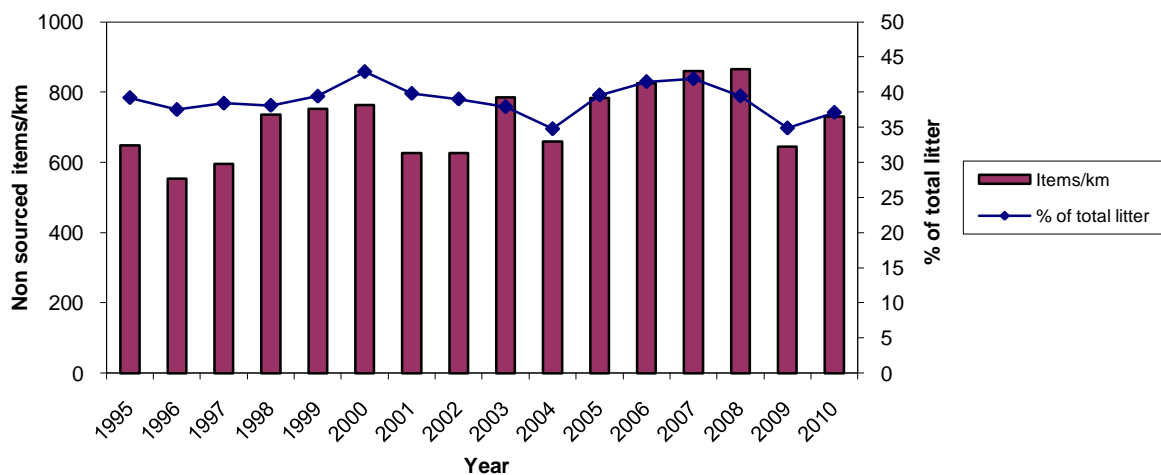
Figure 17: Medical items found during MCS Beachwatch Big Weekends 1995 – 2010.



3.5.8 Non-Sourced Litter

Although the process of sourcing litter continues to be refined each year as further research is conducted, 37.1% of all items recorded during MCS Beachwatch Big Weekend 2010 remain either unidentifiable or cannot be attributed to one specific source (figure 18). These items are classed as non-sourced because assigning them to one particular source would only be a ‘best-guess’. Small pieces of plastic, rubber and cloth rarely provide clues about their original source but continue to represent a significant proportion of the total litter recorded.

Figure 18: Non-Sourced items found during MCS Beachwatch Big Weekends 1995 – 2010.



3.6 Country and Regional Variations in Litter

For the purposes of the Beachwatch Big Weekend data analysis the UK is divided into England, Wales, Scotland, Northern Ireland and the Channel Islands; England is then further sub-divided into four regions, (i.e. North West, North East, South West and South East).

3.6.1 Regional Variations in Litter Density

During MCS Beachwatch Big Weekend 2010 the highest overall litter density recorded was in Wales with 3,372 items/km, representing a 9% increase compared to Beachwatch Big Weekend 2009 (3,084 items/km).

Scotland had the second highest litter levels, an increase of 25% from 2009 (1,907 items/km in 2009 compared to 2,382 items/kilometre in 2010). England had the third highest litter levels (1,805 items/km) representing a 1.5% increase compared to figures relating to Beachwatch Big Weekend 2009 (1,778 items/km).

Northern Ireland had the fourth highest average litter density level (1,122 items/km in 2010) representing a 37% reduction on the figure for 2009 (1,775 items/km). In 2009, there was an increase of 89% from 2008.

The Channel Islands, had the lowest litter density (1,015 items/km in 2010) representing a 7% increase compared to litter density in 2009 (948 items/km).

Within England, the greatest density of litter was recorded- as in previous years - in the South West, where 3,144 items/km were recorded, followed by the South East (1,564/km), North East (1,336/km) and North West (1,324/km) respectively.

When compared to MCS Beachwatch Big Weekend 2009, average litter densities increased in all countries and regions with the exception of the North West, South West and Northern Ireland.

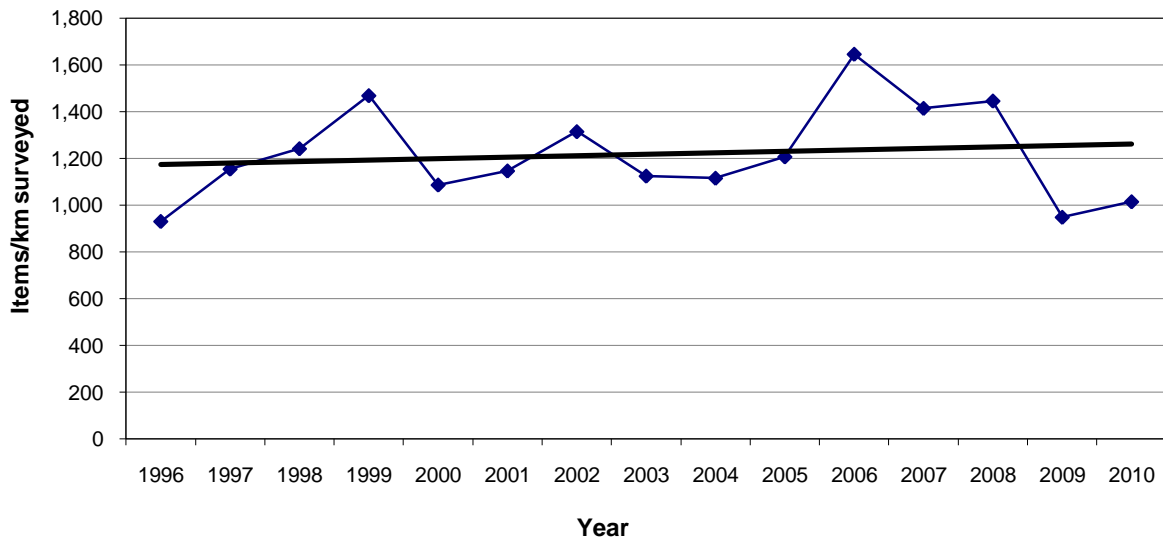
Table 11: Country and regional variations in litter density during MCS Beachwatch Big Weekends 2005 – 2010.

Region	No. of beaches surveyed	Total no. of volunteers	Total litter items	Total length surveyed (km)	Items/km in 2010	Items/km in 2009	Items/km in 2008	Items/km in 2007	Items/km in 2006
Country									
Channel Islands	32	295	14,668	14.4	1015.2	948.8	1446.0	1414.5	1646.2
Northern Ireland	8	63	4,983	4.4	1122.3	1775.1	940.2	1057.1	624.6
Scotland	57	767	53,162	22.3	2382.2	1907.4	2581.4	2727.8	2091.7
Wales	64	755	62,694	18.6	3372.8	3084.2	2549.9	2654.8	2524.8
England (total)	215	3047	194,600	107.8	1805.2	1778.6	2460.8	2094.3	2084.3
England Regions									
NE England	41	460	31,693	23.7	1336.0	1165.9	1459.8	1322.5	1620.6
NW England	11	93	7,046	5.3	1324.4	2256.3	1658.8	1983.2	1926.5
SE England	101	1,638	90,906	58.1	1564.7	1445.8	1941.3	1841.7	1604.4
SW England	62	856	64,955	20.7	3144.2	3269.2	4783.6	3230.0	3185.7
UK Total	376	4927	330,107	167.6	1969.7	1849.2	2195.1	2053.7	1988.7

Channel Islands

A total of 14,668 litter items were collected on 32 beaches (consisting of 23 beaches on Guernsey, five on Herm Island, one on Alderney and three on Jersey) over a total length of 14.4km. An average of 1,015 litter items/kilometre were recorded, lower than the 2010 UK average of 1,969 items/kilometre (figure 19) but higher than results in 2009 (949 items/kilometre) representing a 7% increase in litter levels.

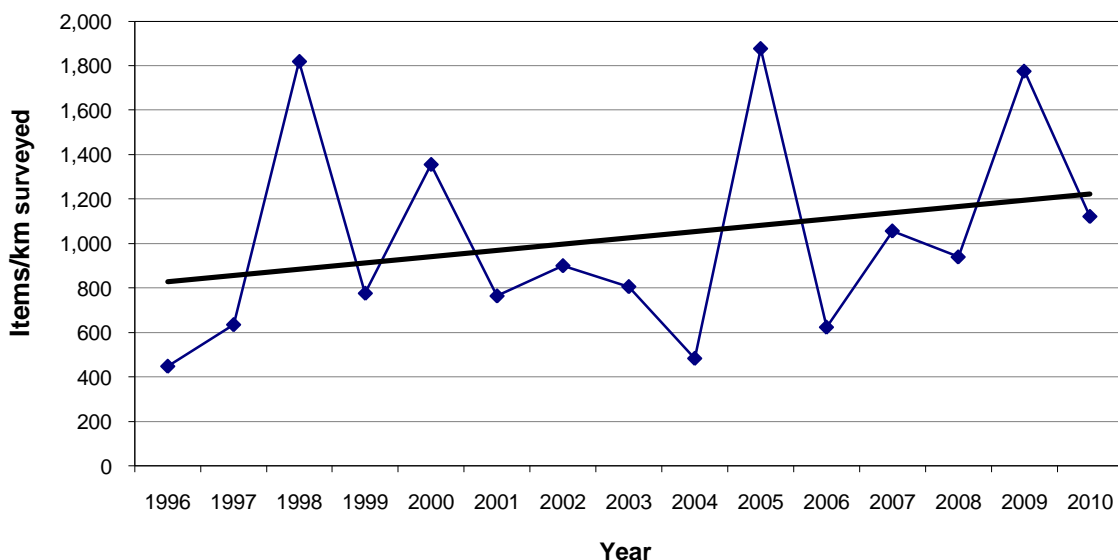
Figure 19: Mean items/km in the Channel Islands for Beachwatch Big Weekend surveys 1996–2010.



Northern Ireland

A total of 4,983 items of litter were collected on eight beaches over a total length of 4.4km. On average 1,122 items/km were recorded, less than the UK average (1,969 items/km) and lower than results in 2009 (1,775 items/km) representing a 37% decrease in litter density this year.

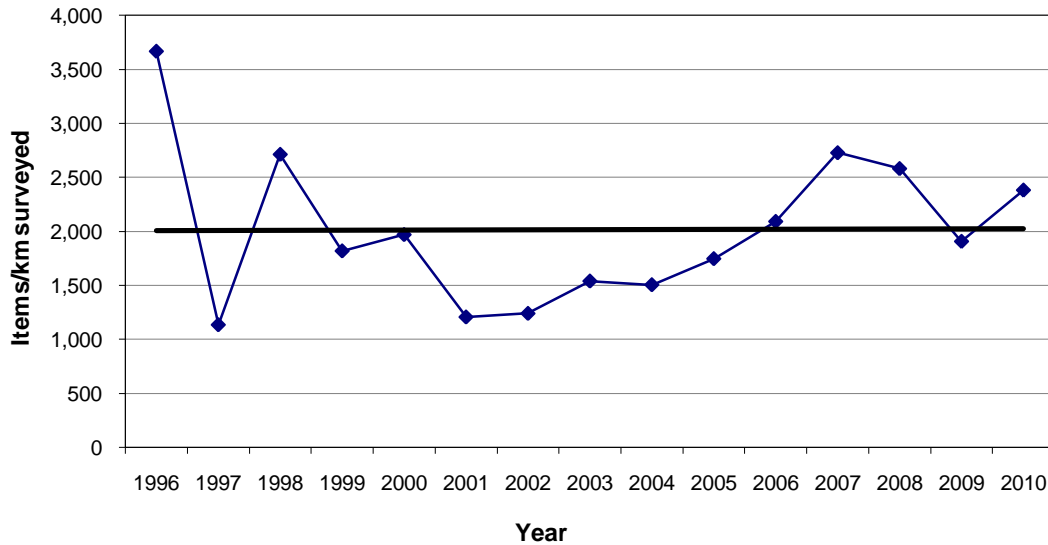
Figure 20: Mean items/km in Northern Ireland for MCS Beachwatch Big Weekend surveys 1996–2010 inclusive.



Scotland

57 beaches took part in MCS Beachwatch Big Weekend 2010 in Scotland. A total of 53,162 litter items were collected over a total length of 22.3km. On average, 2,382 items/km were recorded, higher than the UK average of 1,969 items/km, representing an increase of 25% from 2009. The overall litter density figure in Scotland falls to 2,191 items/km when data from East Bay, Helensburgh and Leven area 2 beaches are removed from analysis.

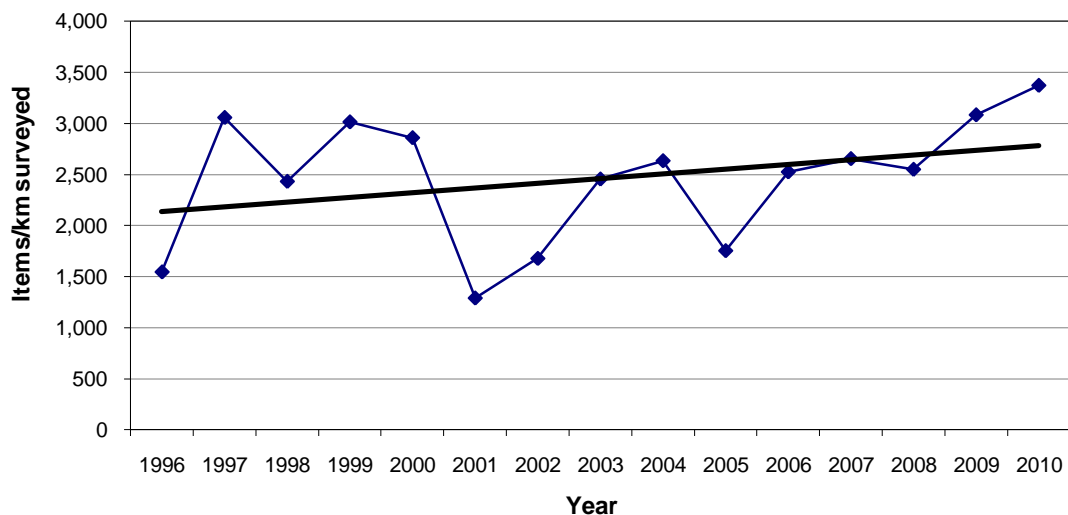
Figure 21: Mean items/km in Scotland for MCS Beachwatch Big Weekend surveys 1996–2010.



Wales

A total of 62,694 litter items were collected from a total of 64 surveyed beaches in Wales. An average of 3,372 litter items/km were recorded (the highest average litter density level ever recorded, even after the highest previous record of 2009) compared to 3,084 in 2009 (figure 22), representing a 9% increase.

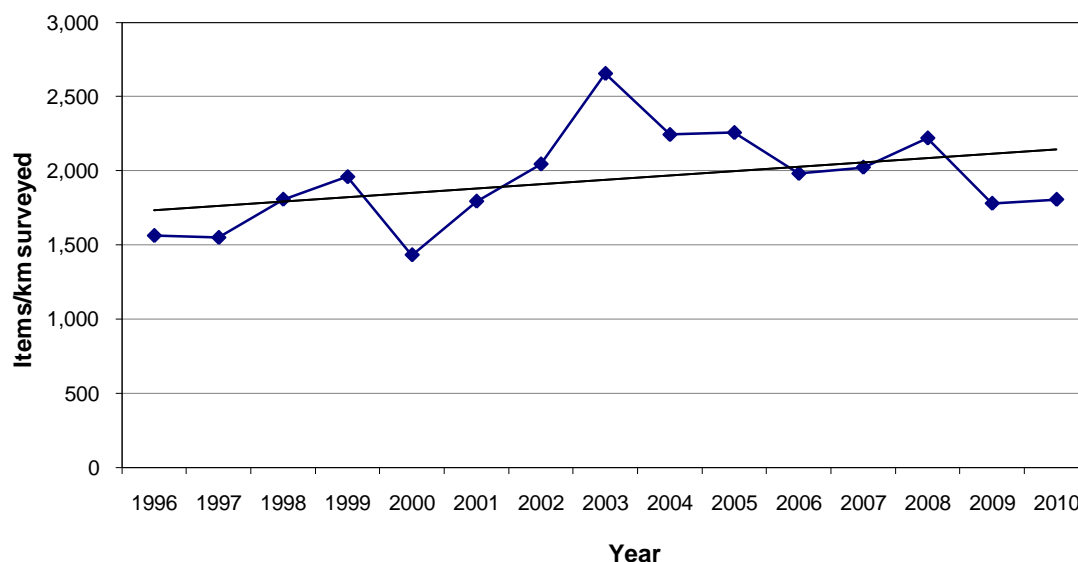
Figure 22: Mean items/km in Wales for MCS Beachwatch Big Weekend surveys 1996–2010.



England

A total of 194,600 litter items were collected on 215 beaches over a total length of 107.8km. The density of litter in England was 1,805 items/km, lower than the UK average of 1,969 items/km, representing a 1.5% increase when compared to 2009 figures (1778 items/km).

Figure 23: Mean items/km in England for MCS Beachwatch Big Weekend surveys 1996–2010.



North East

A total of 31,693 items of litter were collected from 41 beaches over a total length of 23.7km. On average 1,336 items of litter/km were found, lower than the UK average (1,969 items/km) representing an increase of 14% compared to 2009 figures (1,165 items/km).

North West

A total of 7,046 items of litter were collected from 11 beaches over a total length of 5.3km. On average 1,324 items/km were found, the lowest litter levels have been since 2003 and lower than the UK average (1,969 items/km). There is a 41% decrease compared to 2009 figures (2,256 items/km).

South East

A total of 90,906 items of litter were collected from 101 beaches over a total length of 58.1km. On average 1,564 litter items/km were found, lower than the UK average (1,969/km), and 8% more than in 2009 (1,445 items/km).

South West

A total of 64,955 litter items were collected from 62 beaches over a total length of 20.6km. On average 3,144 items/km were recorded, considerably higher than the UK average (1,969 items/km), representing a 3% decrease compared to 2009 average figures (3,269 items/km).

3.6.2 Regional Variations in Litter Sources

The sources of litter were analysed for all of the UK countries and regions (table 12). The major litter source was public litter (figures 24 and 25), whilst the second most common source was fishing litter in all cases except Scotland and Northern Ireland. Compared to 2009, Wales had particularly high levels of fishing litter and the Channel Islands had particularly low levels of SRD.

Table 12: Country and regional sources of litter recorded during MCS Beachwatch Big Weekend 2010

UK Region	Public		Fishing		SRD		Shipping		Fly tipped		Medical		Non-sourced	
Country	%	Items/ km	%	Items/km	%	Items/km	%	Items/km	%	Items/km	%	Items/km	%	Items/ km
Channel Islands	32.1	325.7	23.0	233.0	1.3	12.9	2.1	21.4	0.6	6.0	0.1	1.2	40.9	414.9
Northern Ireland	42.6	478.4	11.3	127.0	11.8	132.4	1.7	19.1	1.8	20.0	0.1	1.6	30.6	343.7
Scotland	37.5	894.5	8.9	212.3	20.5	487.8	1.7	40.9	1.6	38.9	0.2	3.9	29.6	704.0
Wales	35.2	1,188.6	19.1	644.6	6.6	223.5	1.4	48.8	0.5	17.6	0.2	5.8	36.9	1,243.9
England (total)	38.4	692.6	15.3	275.7	4.2	75.5	1.9	34.0	1.0	17.5	0.2	3.7	39.1	706.1
England Region														
NE England	42.5	567.2	9.5	126.8	8.1	108.6	1.5	20.5	0.8	10.9	0.3	3.6	37.3	498.4
NW England	48.1	637.2	9.8	130.1	3.4	45.7	3.2	42.7	1.4	19.0	8.5	112.8	25.4	337.0
SE England	37.4	584.7	15.7	246.2	3.4	53.3	2.2	33.8	1.2	19.1	0.2	2.8	39.9	624.8
SW England	36.7	1,154.2	18.0	567.5	3.4	107.6	1.5	47.7	0.6	20.3	0.2	6.6	39.4	1,240.3
UK Total	37.4	737.2	15.3	300.6	7.3	142.9	1.8	35.1	1.0	19.5	0.2	3.7	37.1	730.8

Channel Islands

The highest litter source for the Channel Islands was public litter with a density of 325.7 items/km (32.1% of all litter found), but the lowest throughout the UK. Fishing litter (233 items/km) was the second highest followed by shipping at 21.4 items/km and SRD at 12.9 items/km respectively, representing 1.3% of all litter recorded, way under the UK average of 7.3% and the lowest of all parts of the UK.

Northern Ireland

Litter from the public was the main source recorded at 478.4 items/km representing 42.6% of all litter. SRD was the second highest at 132.4 items/km, followed by fishing (127.0 items/km) and shipping (19.1 items/km) respectively. However, as only eight beaches were surveyed during MCS Beachwatch Big Weekend 2010 due to the small sample size, we are not able to state with any confidence that this is a representative picture of litter on Northern Ireland beaches.

Scotland

Scotland had the highest litter densities of SRD (487.8 items/km) and fly tipped (38.9 items/km). The highest source recorded was litter coming from the public (894.5 items/km), followed by SRD (487.8 items/km, representing 20.5% of total litter, almost three times higher than the 7.3% UK average), fishing (212.3 items/km) and shipping (40.9 items/km). If the results of East Bay Helensburgh and Leven area 2 beaches (which were particularly badly affected by SRD litter) are removed, SRD makes up 12% of all litter – still nearly double the UK average.

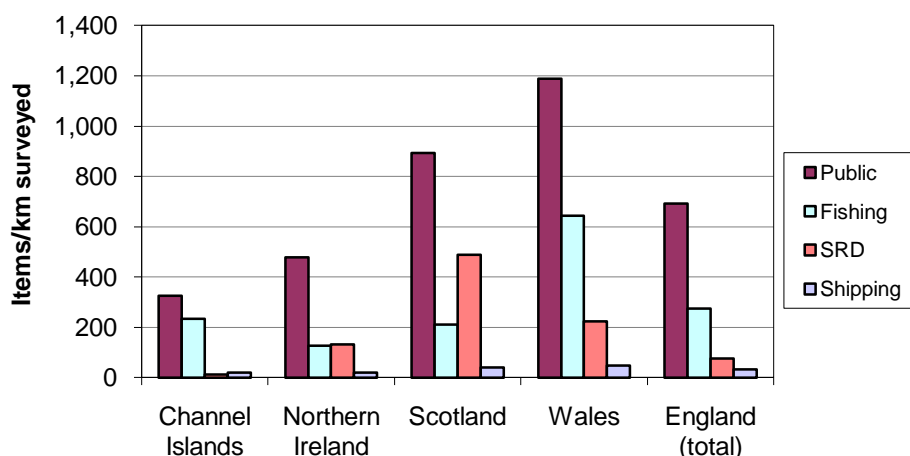
Wales

Wales had the highest litter densities of four out of the six source categories: public (1,188 items/km), fishing (644.6 items/km), shipping (48.8 items/km) and medical (5.8 items/km). The main source recorded was public litter followed by fishing (644.6 items/km), SRD (223.5 items/km) and shipping (48.8 items/km).

England

England didn't show highest or lowest levels for any of the source categories, although public litter made up the majority of litter recorded. Public litter was again the main source recorded on beaches in England (692.6 items/km), followed by fishing (275.7 items/km), SRD (75.5 items/km) and shipping (34.0 items/km) respectively.

Figure 24: Major sources of litter in UK countries during MCS Beachwatch Big Weekend 2010.



Litter Sources in English Regions.

North East

The North East had the lowest litter density levels for public litter (567.2 items/km), fishing (126.8 items/km), shipping (20.5 items/km) and fly tipped (10.9 items/km). Public litter was the largest source of litter in the North East, followed by fishing, SRD and shipping respectively. The North East had the highest SRD levels of all four regions within England.

North West

The North West had the lowest litter levels of SRD of all four regions (45.7 items/km) and the highest levels of medical waste (112.8 items/km). The largest source recorded was public litter (637.2 items/km) followed by fishing (130.1 items/km), medical and SRD respectively. However, as only eleven beaches were surveyed during MCS Beachwatch Big Weekend 2010 due to the small sample size, we are not able to state with any confidence that this is a representative picture of litter on North West beaches.

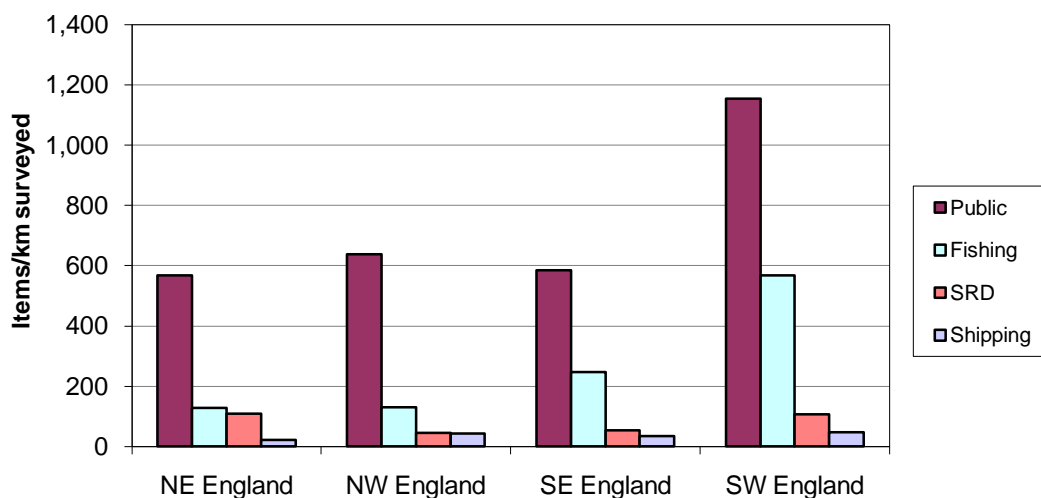
South East

The South East showed the lowest density levels in medical waste (2.8 items/km). The main source recorded was public litter at 584.7 items/km, whilst the second highest source was fishing (246.2 items/km), followed by SRD (53.3 items/km) and shipping (33.8 items/km).

South West

This region had the highest litter densities in public (1,154.2 items/km), fishing (567.5 items/km), shipping (47.7 items/km) and fly tipped (20.3 items/km) of all four regions. The main source recorded was public, followed by fishing, SRD (107.6 items/km) and shipping respectively.

Figure 25: Major sources of litter in England regions during MCS Beachwatch Big Weekend 2010.



3.7 Underwater Clean-Ups

Five underwater litter cleans and surveys were conducted as part of MCS Beachwatch Big Weekend 2010. Underwater cleans include combined cleans where volunteers grouped together the litter they found underwater and on the beach.

Table 14: Summary of results for Beachwatch Big Weekend 2010 underwater clean ups.

Beachwatch 2010 underwater cleans	
Number of sites surveyed	5
Number of volunteers	95
Number of bags	74
Total number of items	4,075
Distance surveyed (km)	1.0
Items / km	3,895.8

The main sources of litter found on these five sites were from the public (37.5%) and fishing (21%) respectively.

Table 15: Litter sources recorded during MCS Beachwatch Big Weekend underwater surveys 2010.

Source	Total litter items	% Total Litter	Items/km
Fishing	857	21.0	819.31
Fly Tipped	25	0.6	23.90
Medical	19	0.5	18.16
Non Sourced	1,468	36.0	1,403.44
Public	1,530	37.5	1,462.72
Shipping	121	3.0	115.68
SRD	55	1.3	52.58
Total litter items	4,075	100.0	3,895.79
No. of Km Surveyed:	1.046		

3.8 Unusual Items

Here are just some of the more unusual items found during Beachwatch 2010:

- Mariokart DS card
- Breeze block
- Dummy
- Whole bicycle
- Spiral-shaped plastic (as if it had gone through a shredder)
- Plastic shower head
- 30m gillnet
- Nine Tea light candles
- Silicone lumps
- Plastic Godzilla toy
- Moped
- Toilet seat

3.9 Dead Animals

A total of 164 animals were found dead on beaches during MCS Beachwatch Big Weekend 2010, 83 more recorded than 2009 (tables 16, 17 and 18). The most commonly found dead animal was Black guillemots.

Table 16: Number of dead mammals found during Beachwatch Big Weekend 2010.

Total	Mammals
12	Seal
4	Porpoise
1	Deer
1	Pony
1	Rabbit
1	Sheep
1	Mouse
1	Otter
1	Fox
1	Cow
1	Unspecified mammal

Table 17: Number of dead birds found during MCS Beachwatch Big Weekend 2010.

Total	Birds
48	Unspecified bird
45	Black Guillemot
9	Common Guillemot
8	Manx Shearwater
3	Gannet
2	Razorbill
2	Herring Gull
2	Black Headed Gull
1	Crow
1	Puffin
1	Cormorant
1	Swan
1	Lesser Black Backed Gull

Table 18: Number of dead fish and invertebrates found during MCS Beachwatch Big Weekend 2010.

Total found	Fish, Invertebrates and Amphibians
7	Unspecified fish
3	Crab
3	Jellyfish
1	Eel
1	Plaice

3.10 Foreign Litter

At least 23 litter items from nine different countries were recorded during MCS Beachwatch Big Weekend 2010 (table 19). The exact number of items found was not always noted, and the country of origin could not always be accurately determined. It is generally the packaging labels that indicate whether a litter item has originated from abroad, but these are often removed rapidly in the marine environment, therefore the total number of foreign items found is almost certainly an underestimate. It is not possible to determine the location at which these items entered the marine environment. Some of the objects recorded may have been deposited overboard from foreign vessels in UK waters, whereas some may have travelled from their country of origin as a result of their buoyancy. As a result, we can only infer the country where these items were sold or manufactured. France, Spain and the Netherlands were the most common source of foreign litter items.

Table 19: Litter found outside the country of origin during Beachwatch Big Weekend 2010.

Country	Number of Items	Description
France	11	Bottles, fish boxes, Plastic tube of lip cream; Bourjois. SAS 92200 Neuilly Sur Seine, France. Zip code. 305z03420516, Wrapping from life jacket in French "L'abri Du Marin"
Netherlands	3	Fishing box, crisp packet, Packaging
Spain	3	250 litre oil drum, food container, Milk tetra pack, Plastic Tag: Brooks TODO PATENTADO
Turkey	1	Packet for Turkish airlines in flight refreshment wet wipe
Poland	1	Beer can
China	1	Juice carton manufactured in Shanghai -all other writing in Chinese
Germany	1	Tube of mastic filler
Portugal	1	Packaging
USA	1	Packaging

3.11 Prevailing Weather Conditions

During MCS Beachwatch Big weekend 2010, all UK countries and England regions experienced onshore winds. There was mainly a light wind (apart from Scotland and North West where the wind was strong) and the sea was mainly moderate in all UK regions except the Channel Islands and South West England where the sea was described as calm (table 20).

Table 20: Weather conditions in different regions of the UK recorded during MCS Beachwatch Big Weekend 2010.

Country/region	Average Wind Direction	Average Wind Speed	Average Sea State
Channel Islands	Onshore	Light	Calm
Northern Ireland	Onshore	Light	Moderate
Scotland	Onshore	Strong	Moderate
Wales	Onshore	Light	Moderate
England	Onshore	Light	Moderate
England:			
North East	Onshore	Light	Moderate
North West	Onshore	Strong	Moderate
South East	Onshore	Light	Moderate
South West	Onshore	Light	Calm

General Weather Conditions Prior to MCS Beachwatch Big Weekend

Thursday 16th

All areas were in a cool and breezy north-westerly airflow. After a chilly start, most places had a day of variable cloud and scattered showers. The most widespread showers were in parts of Scotland, Northern Ireland and central England as another cold front slipped south. The best of the sunshine was in the central belt of Scotland sheltered by the Scottish Highlands.

Friday 17th

Weather conditions were similar to the previous day; it was cool in all areas and there were quite large expanses of cloud in most areas, a few sunny intervals and just isolated showers. The Northern Isles and North-East Scotland were very cool and windy but winds moderated in other areas.

Weather Conditions During MCS Beachwatch Big Weekend

Over the MCS Beachwatch Big Weekend itself high pressure started to build from the West but the weather remained cool and rather unsettled. Southern England was quite sunny on the Saturday (the 18th) but there were showery outbreaks of rain in some areas further North again. The North-Westerly winds gave another cool start to the day. On Sunday (the 19th) a warm front gave a few outbreaks of rain from the North Midlands northwards. Parts of North-West England were very wet with over 50mm of rain during the day. Most places were cloudy and cool again but it was sunny in the Northern Isles.

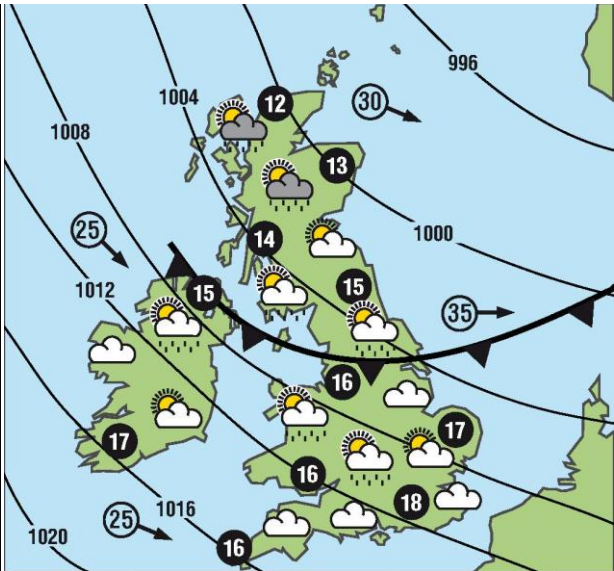


Figure 28: UK weather map for Thursday 16th September 2010

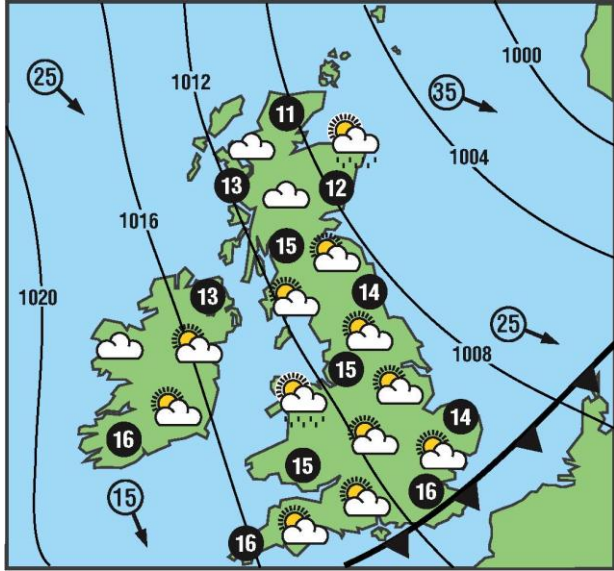


Figure 29: UK weather map for Friday 17th September 2010

Weather Summary from Rain Today brought to you by MeteoGroup UK, maps from MeteoGroup and PA Entertainment Data.