

2. METHODS

2.1 Litter Survey

The MCS Beachwatch Big Weekend 2009 litter survey and beach clean up took place over the weekend of the 19th and 20th September 2009. The survey was restricted to this time frame 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 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 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 prepared data sheets, categorising the items according to material type (plastics, metal, sanitary etc.) and, in most instances, exact identity (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. 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 correct 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 6 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, 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 BBQs, metal bottle caps, metal drink cans, foil wrappers, household batteries*, animal faeces in bags*, animal faeces not in bags*, paper bags, carton / tetrapak (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 < 50 cm*, fishing net and net pieces > 50 cm*, 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, carton/tetrapaks milk*, 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:	Inhaler, 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.

* - Category description changed from MCS Beachwatch 2008.

* - New category for 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 Beachwatch 2008 to incorporate categories used in OSPAR beach litter monitoring.

For the purposes of the regional analyses, the UK was broken down into the following countries and England regions: Scotland, Wales, Northern Ireland, the Channel Islands, North West England (between Welsh and Scottish borders, and including Isle of Man), North East England (between the Norfolk/Lincolnshire border and Scotland), South East England (Norfolk, Suffolk, Essex, Kent, Sussex and Hampshire) and South West England (English/Welsh border to Hampshire/Dorset border).

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

On the 19th and 20th September 2009, the seventeenth annual MCS Beachwatch Big Weekend litter survey and beach clean took place on beaches around the UK, to coincide with the Ocean Conservancy's International Coastal Cleanup covering over 70 countries worldwide. A total of 397 beaches, covering 185kilometre of coastline in England, Scotland, Wales, Northern Ireland and the Channel Islands were cleaned and surveyed by 4,655 volunteers. In total, over 9,995 volunteer hours were spent removing and recording 342,151 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 Beachwatch Big Weekend (and returned on time) was included in the data analysis. Survey forms received for an additional 7 beaches were therefore excluded from the analysis (appendix D).

Table 4: Summary of MCS Beachwatch Big Weekend 2009 litter survey and clean up results.

Beachwatch Big Weekend 2009 Summary	
Volunteers	4,655
Number of beaches surveyed	397
Total length surveyed (kilometre)	185.0
Number of bags	2,742
% Public	41.5
% Fishing	15.1
% Sewage Related Debris (SRD)	5.4
% Shipping	2.0
% Fly tipped	0.9
% Medical	0.2
% Non sourced	34.9
Total number of items	342,151
Total volunteer hours	9,995
Mean items/kilometre	1,849.2

3.2 Comparisons With Previous Years

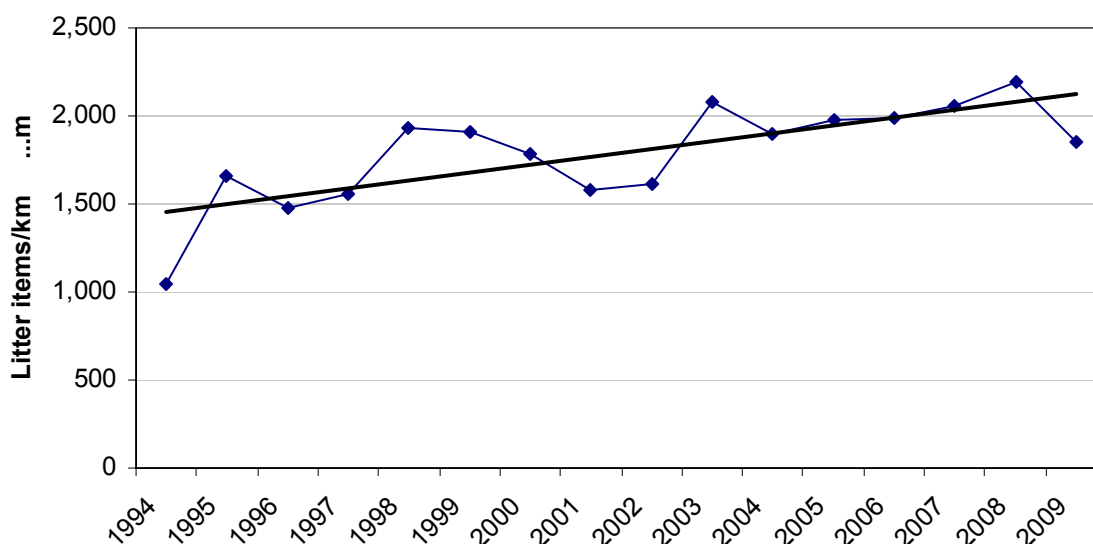
A total of 185.0kilometre of coastline was surveyed in 2009 (table 5), 9.3 kilometre more than in 2008 (175.7 kilometre). The average number of litter items found per kilometre surveyed in MCS Beachwatch Big Weekend 2009 (1,849 items/kilometre) has fallen by 16% compared to Beachwatch 2008 (2,195 items/kilometre). MCS Beachwatch Big Weekend 2009 results provide a snapshot of the litter found on UK beaches over one weekend.

Table 5: Comparison of results from MCS Beachwatch 1994 – 2009.

Year	Number of beaches surveyed	Total length surveyed (kilometre)	Total number of items	Items/kilometre
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

Overall there has been an increase of 77% in the average density of beach litter on surveyed UK beaches compared to figures in Beachwatch 1994 (1,045 items/kilometre). Figure 1 effectively illustrates beach litter levels have been steadily increasing since 1994, despite yearly variations.

Figure 1: Mean items of litter/kilometre surveyed recorded in Beachwatch surveys 1994- 2009.



3.3 Top 20 Litter Items

The 20 most common items found during MCS Beachwatch Big Weekend 2009 (table 6) comprise 79% of the total items found. Plastic food containers and plastic pieces (other) are new to the top 20 for Beachwatch 2009 when compared to 2008, and the position of many litter items have changed. In particular, food wrappers have increased from sixth position to third and plastic food containers from 27th to 18th position.

All of the top 10 items are entirely or partially 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 in Beachwatch surveys consecutively since 1998.

Table 6: Top 20 litter items recorded in Beachwatch 2009.

Position 2008	Position 2009	Litter item	No. of items collected	% of total litter	Items/kilometre
2	1	Plastic pieces <2.5cm*	38,264	11.2	206.8
1	2	Plastic pieces >2.5cm*	32,282	9.4	174.5
6	3	Crisp / sweet / lolly / sandwich wrappers*	24,465	7.2	132.2
4	4	Plastic rope / cord / string*	24,243	7.1	131.1
5	5	Plastic caps / lids	20,254	5.9	109.5
3	6	Polystyrene pieces	16,396	4.8	88.7
10	7	Plastic drinks bottles	16,243	4.8	87.8
8	8	Fishing net and net pieces <50cm*	14,648	4.3	79.2
7	9	Cotton bud sticks	12,961	3.8	70.1
12	10	Cigarette stubs	11,670	3.4	63.1
TOP 10 ITEMS			21,1426	61.8	1,142.7
9	11	Glass pieces	9,662	2.8	52.2
17	12	Metal drink cans	8,890	2.6	48.1
13	13	Fishing line (from anglers)	8,055	2.4	43.5
14	14	Plastic bags	7,393	2.2	40.0
16	15	Plastic cutlery / trays / straws / cups*	7,025	2.1	38.0
18	16	Polystyrene foam / sponge	5,180	1.5	28.0
11	17	Cloth pieces / string*	4,267	1.3	23.1
27	18	Plastic food containers	4,146	1.2	22.4
19	19	Wood pieces	3,854	1.1	20.8
23	20	Plastic pieces (other)	3,626	1.1	19.6
TOP 20 ITEMS			27,3524	79.9	1,478.3

* Description of litter item has changed since Beachwatch 2008. See table 3.

Table 7: Totals for all litter items recorded in Beachwatch 2009

BW09 material category & item	% of total litter	Items / kilometre	Total number collected	Material category & item	% of total litter	Items / kilometre	Total number collected
Plastics	63.5	1173.6	217,145	Metal	6.1	112.8	20,866
4/6-pack yokes	0.1	1.7	323	Aerosol cans	0.1	2.6	477
Bags (including supermarket)	2.2	40.0	7,393	BBQ (disposable)	0.1	1.8	331
Bottles, containers and drums:				Bottle caps	0.9	16.3	3,022
Drinks	4.7	87.8	16,243	Car Parts/car batteries	0.1	2.3	418
Cleaner	0.2	3.0	559	Drink cans	2.6	48.0	8,890
Food	1.2	22.4	4,146	Fishing weights / hooks / lures	0.1	1.8	326
Foreign	0.1	1.5	283	Foil wrappers	0.9	16.5	3,054
Oil	0.1	1.3	235	Food cans	0.1	2.0	365
Toiletries	0.2	3.3	616	Lobster / crab pots / tops	0.0	0.4	66
Caps / lids	5.9	109.5	20,254	Oil drums	0.0	0.2	28
Cigarette lighters / tobacco pouches	0.4	6.7	1,246	Scrap metal / appliances / paint tins	0.3	4.7	874
Combs / hair brushes/ sunglasses	0.1	1.3	239	Household batteries	0.0	0.5	86
Crisp / sweet / lolly wrappers / sandwich wrappers	7.2	132.2	24,465	Wire and wire mesh / metal pieces	0.7	12.8	2,372
Cutlery / trays / straws/ cups	2.1	38.0	7,025	Other metal	0.2	3.0	557
Fish boxes	0.0	0.8	140	Medical	0.2	3.1	569
Fishing line	2.4	43.5	8,055	Inhaler	0.0	0.3	47
Fishing net < 50cm	4.3	79.2	14,648	Plasters	0.1	1.3	232
Fishing net > 50cm	0.9	16.6	3,064	Syringes	0.0	0.9	161
Floats (Fishing/buoys) / Reels	0.1	1.9	360	Other medical	0.0	0.7	129
Industrial packaging / crates / sheeting	0.2	4.4	807	Sanitary	5.4	100.9	18,661
Lobster / crab pots / tops	0.0	0.4	73	Condoms	0.0	0.6	119
Mesh bags e.g. vegetable	0.2	3.0	554	Cotton bud sticks	3.8	70.1	12,961
Pens	0.3	5.2	966	Nappies	0.1	1.1	202
Rope / cord / string	7.1	131.0	24,243	Tampon applicators / tampons	0.2	4.3	796
Shoes / sandals	0.1	2.5	459	Toilet fresheners	0.0	0.5	100
Shotgun cartridges	0.5	9.2	1,698	Towels / panty liners / backing strips	0.6	10.8	1,998
Strapping bands	0.9	17.2	3,179	Wet wipes	0.6	11.5	2,123
Toys / party poppers / fireworks /	0.5	8.9	1,646	Other sanitary	0.1	2.0	362
Traffic cones	0.0	0.3	54	Faeces	0.6	10.2	1,888
Plastic pieces < 2.5cm	11.2	206.8	38,264	In bags	0.3	4.9	913
Plastic pieces > 2.5cm	9.4	174.5	32,282	Not in bags	0.3	5.3	975
Other plastic	1.1	19.6	3,626	Paper	6.4	117.7	21,771
Polystyrene	8.1	150.6	27,858	Bags	0.3	5.9	1,097
Buoys	0.0	0.5	90	Cardboard	0.4	7.6	1,407
Fast food containers / cups	1.0	18.1	3,348	Cartons / tetrapak (juice)	0.2	3.1	579
Fish boxes	0.0	0.6	105	Cartons / tetrapak (milk)	0.1	1.4	255
Fibreglass	0.1	1.3	249	Cigarette packets	0.4	6.5	1,206
Foam / sponge / insulation	1.5	28.0	5,180	Cigarette stubs	3.4	63.1	11,670
Packaging	0.5	10.0	1,846	Cups	0.2	3.0	554
Polystyrene pieces	4.8	88.6	16,396	Newspapers / magazine	0.5	9.0	1,663
Other polystyrene	0.2	3.5	644	Other paper	1.0	18.1	3,340
Rubber	1.8	33.4	6,175	Wood	2.1	38.8	7,185
Balloons / balloon string	0.4	8.1	1,504	Corks	0.1	2.3	418
Boots	0.0	0.4	70	Lobster / crab pots / tops	0.0	0.0	8
Gloves (heavy duty)	0.1	1.9	356	Crates / pallets	0.0	0.6	104
Gloves (light weight)	0.1	1.7	311	Ice lolly sticks / chip forks	0.7	13.1	2,416
Rubber Pieces <50cm	0.9	16.5	3,045	Paint brushes	0.0	0.4	80
Tyres without holes	0.0	0.4	73	Wood pieces (not twigs)	1.1	20.8	3,854
Tyres with holes	0.0	0.4	65	Other wood	0.1	1.6	305
Other rubber	0.2	4.1	751	Glass	3.5	65.1	12,036
Cloth	1.9	35.3	6,527	Bottles	0.7	12.4	2,289
Cloth pieces	1.2	23.1	4,267	Light bulbs / tubes	0.0	0.5	85
Clothing / shoes/ beach towels	0.5	8.8	1,621	Glass pieces	2.8	52.2	9,662
Furnishings	0.0	0.6	105	Pottery or ceramic	0.4	7.9	1,470
Sacking	0.1	1.2	223	Any pottery or ceramic	0.4	7.9	1,470
Other cloth	0.1	1.7	311				

3.4 Materials and Litter Types

Table 7 displays 100 categories of litter items recorded in MCS Beachwatch Big Weekend 2009. Compared to Beachwatch 2008, 27 litter items increased in density (items/kilometre) and the remaining items decreased.

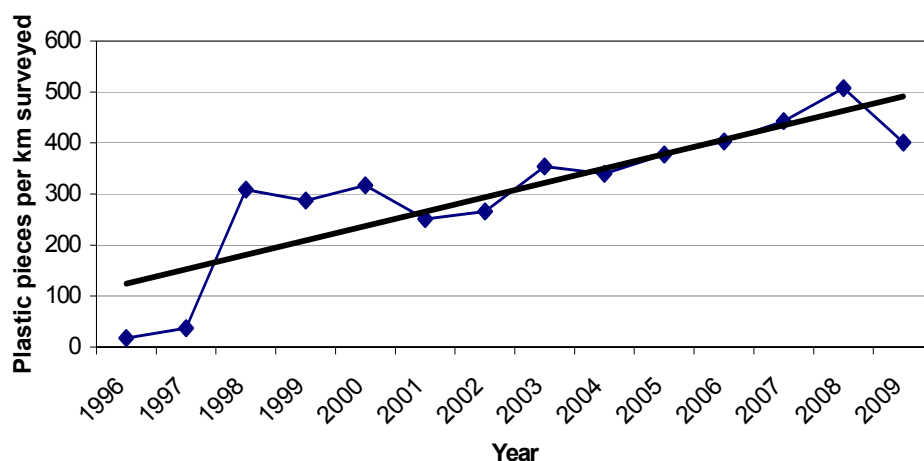
Food and drink related litter items across a number of categories have increased in density this year compared to 2008. Metal drinks cans, polystyrene fast food containers / cups plastic food containers and plastic drinks bottles have all increased in items/kilometre. As an example, crisp / sweet / lolly wrappers / sandwich wrappers have increased from 114.3 items/kilometre in 2008 to 132.2 in 2009. Rope / cord / string have also increased from 127.1 items/kilometre in 2008 to 131.0 items/kilometre in 2009, however this could be because the item description now includes cord and string.

Cotton bud sticks have decreased from 100.5 items/kilometre in 2008 to 70.1 items/kilometre in 2009. 4,693 fewer cotton buds were recorded this year.

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 2009. 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 kilometre surveyed during Beachwatch 1998 – 2009*.



* In previous Beachwatch reports, plastic pieces were shown for just the size range 1-50cm. To incorporate the new size categories, plastic piece sizes <1cm and >1-50cm have been combined for the year's 1996 - 2008.

Figure 3: Plastic caps/lids recorded per kilometre surveyed during Beachwatch 1996 – 2009.

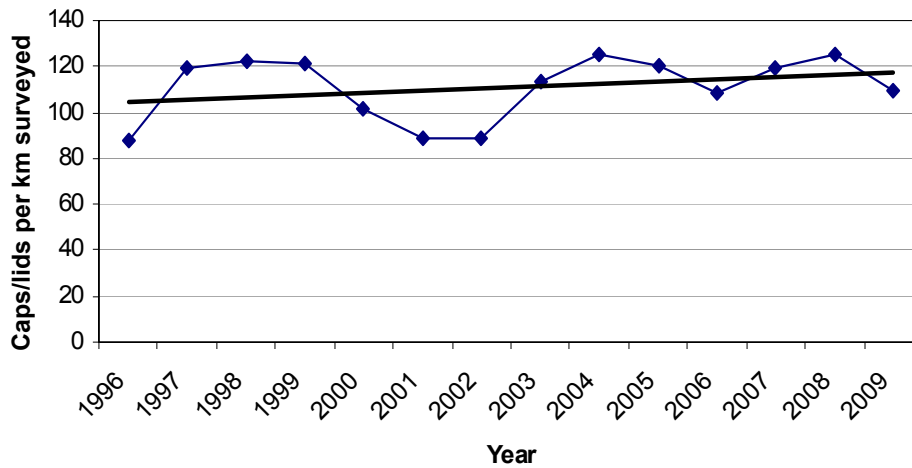


Figure 4: Cotton bud sticks recorded per kilometre surveyed during Beachwatch 1996 – 2009.

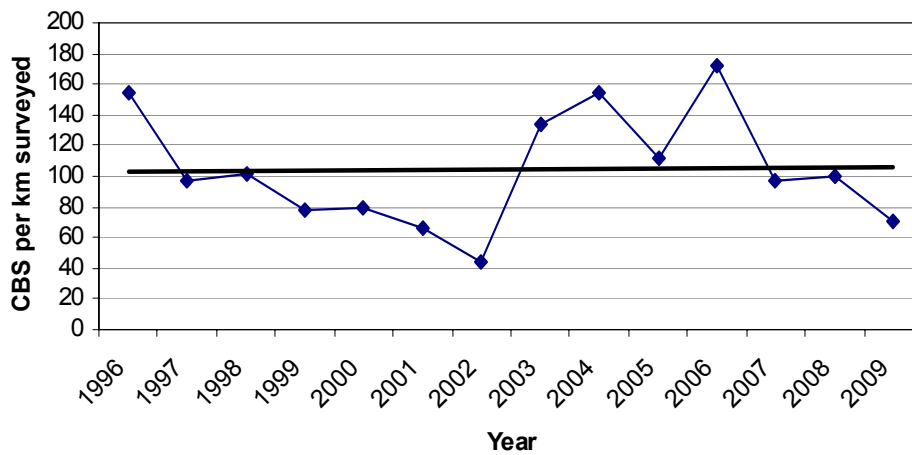


Figure 5: Plastic drinks bottles recorded per kilometre surveyed during Beachwatch 1997 – 2009.

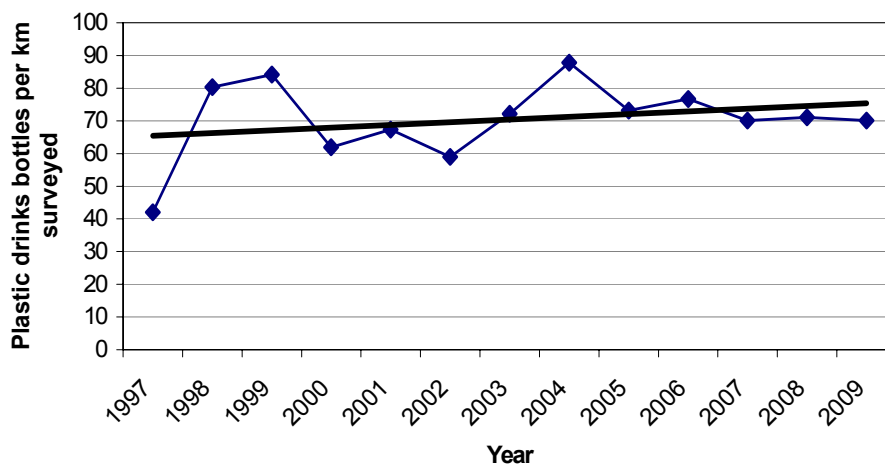


Figure 6: Cigarette stubs recorded per kilometre surveyed during Beachwatch 1996 – 2009.

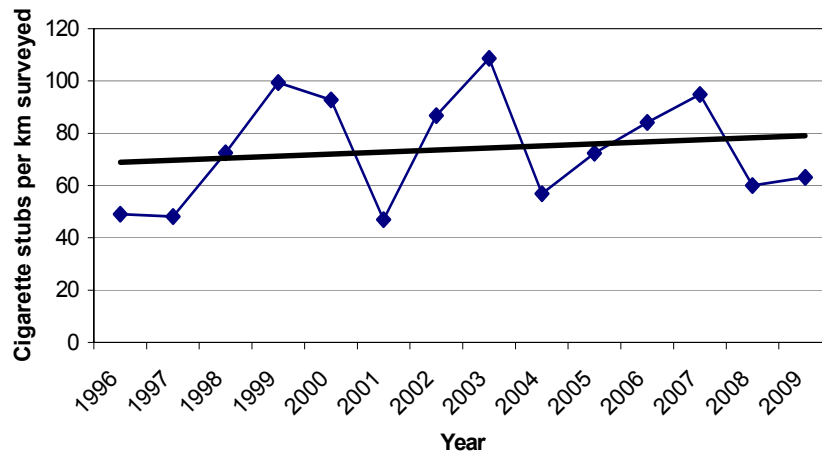


Figure 7: Fishing line recorded per kilometre surveyed during Beachwatch 1999 – 2009.

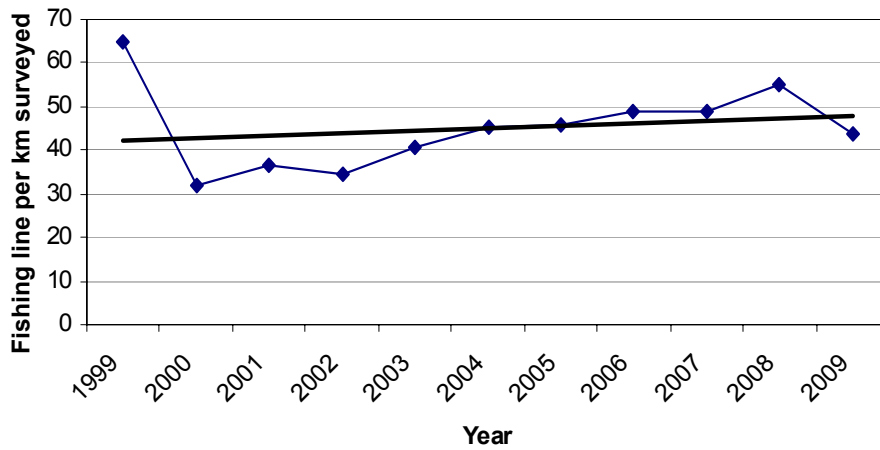


Figure 8: Plastic bags recorded per kilometre surveyed during Beachwatch 1996 – 2009.

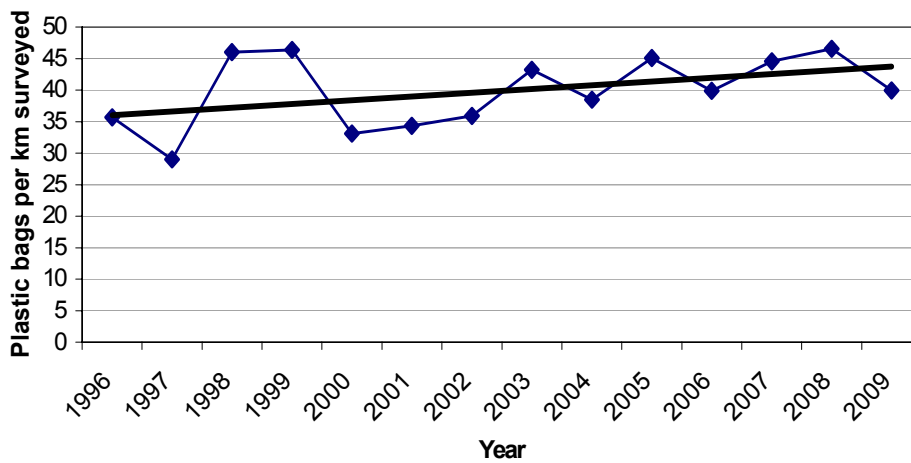


Figure 9: Fast food containers recorded per kilometre surveyed during Beachwatch 1996 – 2009.

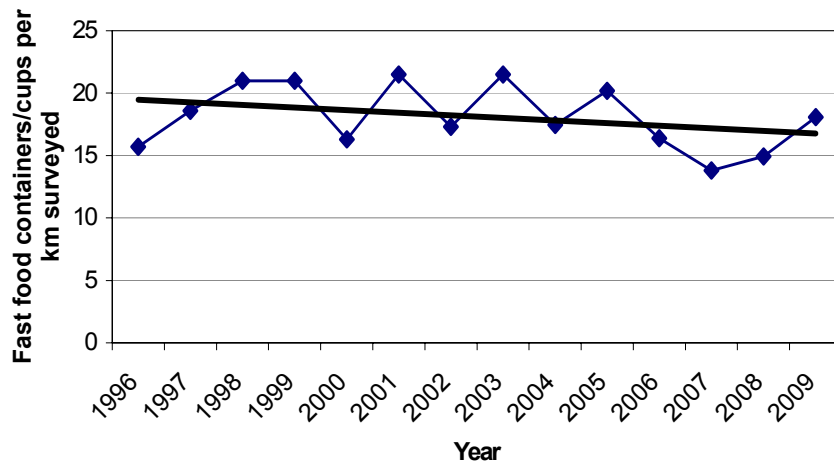
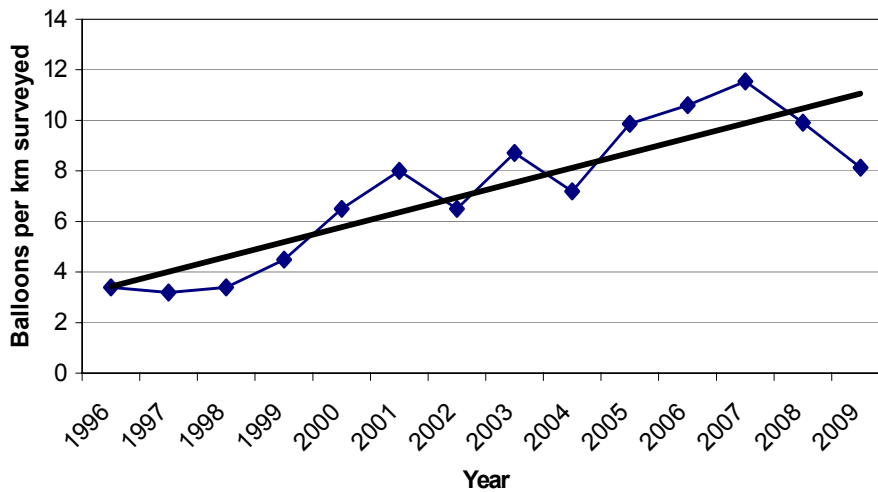


Figure 10: Balloons recorded per kilometre surveyed during Beachwatch 1996 – 2009.



3.4.2. Material types

The density of each material type found in MCS Beachwatch Big Weekend 2009 is shown in table 8. As in previous years, plastic is the most common litter material found on UK beaches.

When density figures are compared to 2008 only animal faeces has increased (from 8.6/kilometre to 10.6/kilometre). Cloth items showed the biggest decrease, with 124% decrease in items per kilometre when compared to the previous year's figures.

Table 8: Material types recorded in Beachwatch 2009.
(Percentages and items/kilometre are recorded to 1 decimal place, listed in most common items first.)

Material category	% of total litter	Items/kilometre	Total number collected
Plastics	63.5	1173.6	217,145
Polystyrene	8.1	150.6	27,858
Paper	6.4	117.7	21,771
Metal	6.1	112.8	20,866
Sanitary	5.4	100.9	18,661
Glass	3.5	65.1	12,036
Wood	2.1	38.8	7,185
Cloth	1.9	35.3	6,527
Rubber	1.8	33.4	6,175
Faeces	0.6	10.2	1,888
Pottery & Ceramics	0.4	7.9	1,470
Medical	0.2	3.1	569

3.4.3 Plastics

The percentage of plastic materials found on UK beaches is the highest it has ever been and is now over 60%. Plastic items represent 63.5% of all litter recorded during MCS Beachwatch Big Weekend 2009 (table 9), an increase of 6.5% compared to 2008. The five most common plastic items (plastic pieces < 2.5cm, plastic pieces > 2.5cm, crisp / sweet / lolly / sandwich wrappers, rope / cord / string and caps / lids) are also the five most common items found of all litter (table 6) and represents 41% of all the plastic recorded and consisted of 139,508 items.

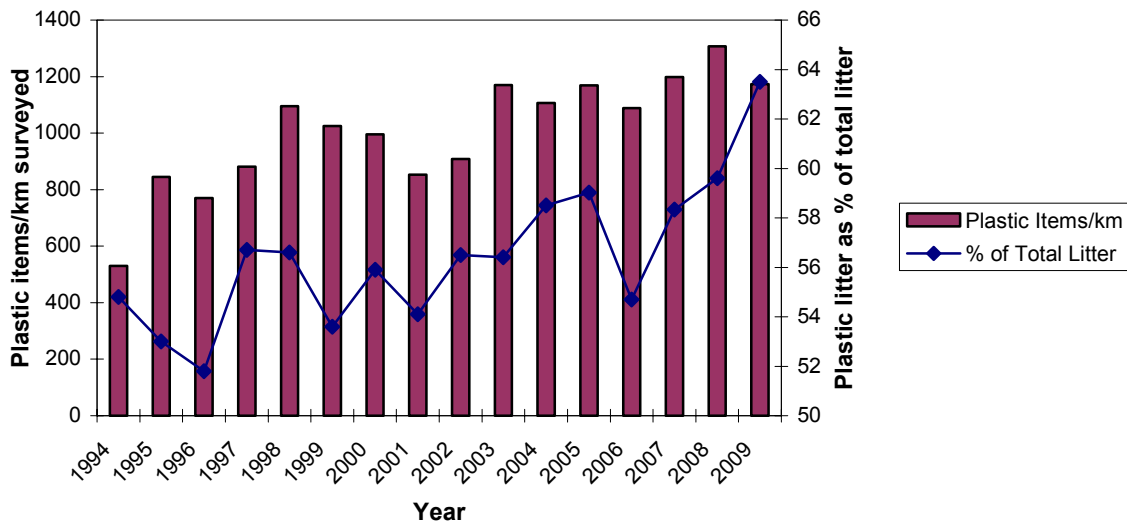
The density of plastic recorded has fallen from 1307 items/kilometre in 2008 to 1174 items/kilometre in 2009. However this is still a 121.4% increase in plastic items/kilometre compared to Beachwatch figures in 1994. Figure 11 illustrates the continual rise in plastic density since 1994.

It should also be noted that most items of sewage related debris (SRD) 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 in Beachwatch 1994 – 2009.
(Percentages and items/kilometre are recorded to 1 decimal place)

Year	Plastic items/kilometre	% of total litter
1994	530.0	54.8
1995	845.0	53.0
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

Figure 11: Plastic litter recorded in Beachwatch 1994-2009.



3.5 Sources

Identifying the source of many litter items is a complex task as litter may reach a beach in a number of 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 kilometre in each sourced litter category for Beachwatch surveys since 1995.

Table 10: Litter sources recorded in Beachwatch surveys from 1995 to 2009.
(Percentages and items/kilometre are recorded to 1 decimal place)

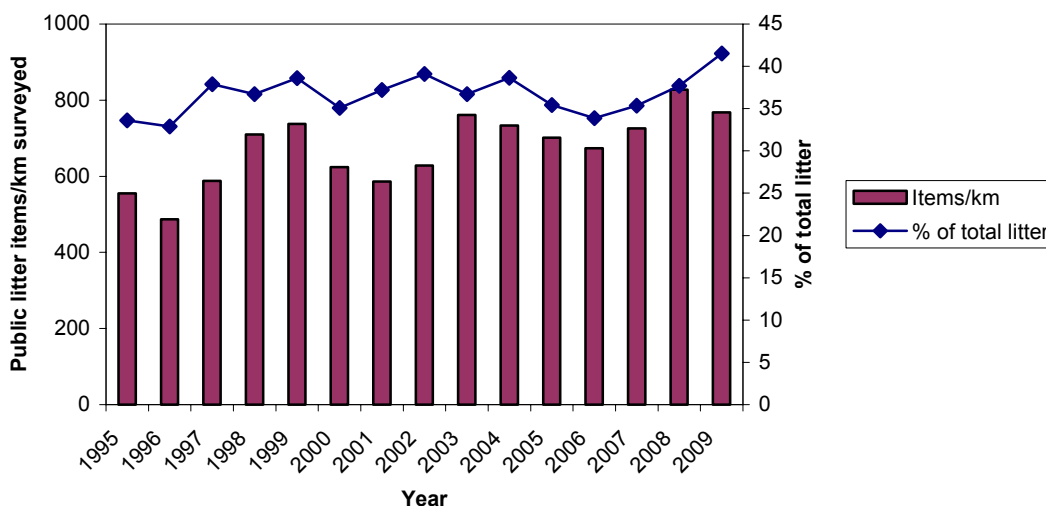
Source		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Public	No of items	103,848	95,907	99,329	118,485	67,701	65,022	82,883	94,242	102,662	106,472	119,758	126,315	122,277	145,347	142,017
	% of total	33.6	32.9	37.9	36.7	38.6	35.1	37.2	39.1	36.7	38.6	35.4	33.9	35.3	37.7	41.5
	Items / kilometre	555.3	486.8	587.7	709.5	737.8	624.0	586.6	628.3	761.0	733.0	701.5	673.4	725.7	827.3	767.6
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
	% of total	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
	Items / kilometre	193.8	185.1	180.1	260.0	215.0	221.5	192.6	234.7	303.6	266.8	289.1	223.2	281.0	302.8	279.3
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
	% of total	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	5.4
	Items / kilometre	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
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
	% of total	2.4	2.4	2.6	2.9	2.6	2.2	3.0	2.2	2.0	2.2	2.2	2.0	1.8	1.8	2.0
	Items / kilometre	39.2	35.8	40.2	57.0	49.7	39.9	47.8	35.7	41.7	42.5	44.1	39.8	37.8	39.1	37.5
Fly-tipped	No of items	2,802	3,167	2,594	4,235	2,930	1,276	1,990	2,642	2,615	2,323	2,598	3,452	3,278	3,599	2,994
	% of total	0.9	1.1	1.0	1.3	1.7	0.7	0.9	1.1	0.9	0.8	0.8	0.9	0.9	0.9	0.9
	Items / kilometre	15.0	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
Medical	No of items	233	214	215	294	205	266	264	341	294	324	675	591	637	700	569
	% of total	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
	Items / kilometre	1.2	1.1	1.3	1.8	2.2	2.6	1.9	2.3	2.2	2.2	4.0	3.2	3.8	4.0	3.1
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
	% of total	39.2	37.5	38.4	38.1	39.4	42.9	39.8	39.0	37.9	34.8	39.6	41.5	41.9	39.4	34.9
	Items / kilometre	648.0	554.2	596.2	736.3	753.0	763.6	627.3	627.3	785.3	659.6	783.9	824.9	860.4	865.6	644.9
Total items / kilometre		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

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 increased from 37.7% in 2008 to 41.5% in 2009. The density of public litter has decreased from 827 items/kilometre in 2008 to 768 items/kilometre in 2009 (table 10, figure 12). However, as in previous Beachwatch surveys, public litter remains the highest proportion of sourced litter.

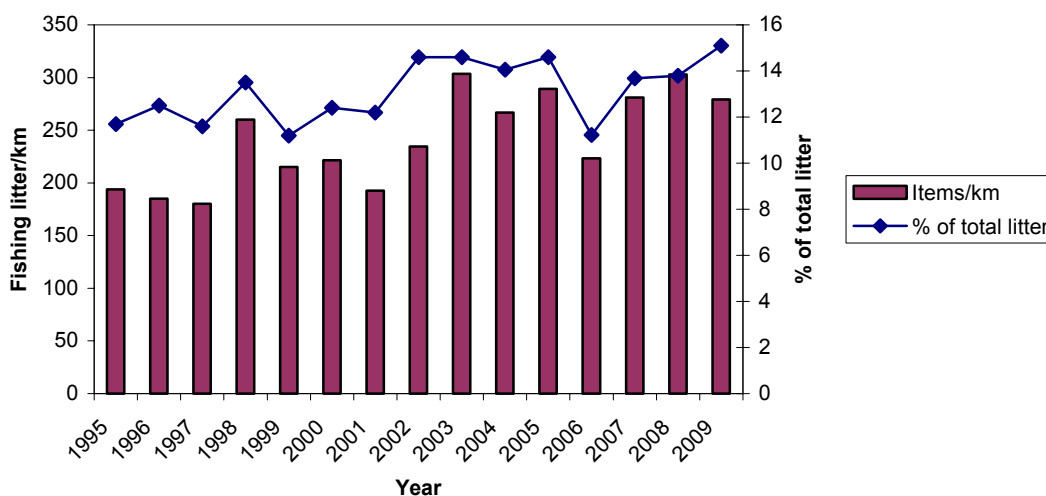
Figure 12: Public litter found during Beachwatch 1995 – 2009.



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 decreased this year (279 items/kilometre) compared to 2008 (302 items/kilometre) but fishing litter remains the second largest recognisable source of litter on UK beaches surveyed, representing 15.1% of all litter (figure 13).

Figure 13: Fishing litter found during Beachwatch 1995 – 2009.



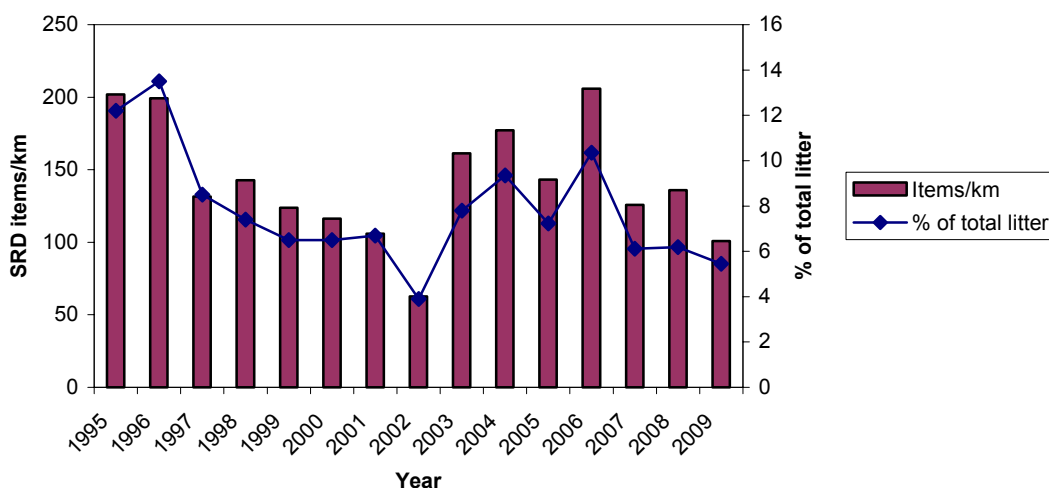
3.5.4 Sewage Related Debris (SRD)

Sewage related debris, 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 sewerage system. The density and percentage of total litter represented by SRD decreased from 136 items/kilometre (6.2%) in 2008 to 101 items/kilometre (5.4%) in 2009 (figure 14).

As in previous years, the most common item of SRD was cotton bud sticks, which accounted for 69.5% of SRD and 3.8% of all litter found in 2009. The average density of cotton bud sticks decreased by 30.3% from 101/kilometre in 2008 to 70/kilometre in 2009.

Sewage related debris was analysed without the data from East Bay Helensburgh beach because it is particularly badly affected. SRD then contributes 4.0% to the total amount of litter found on average across the UK, and the SRD density is 72 items/kilometre. Cotton bud sticks still make up the majority of the SRD items accounting for 57.5% of the total litter and 42 items/kilometre. In Beachwatch 2008 CBS without the badly affected beaches data was higher at 51 items/kilometre.

Figure 14: SRD found during Beachwatch 1995 – 2009.



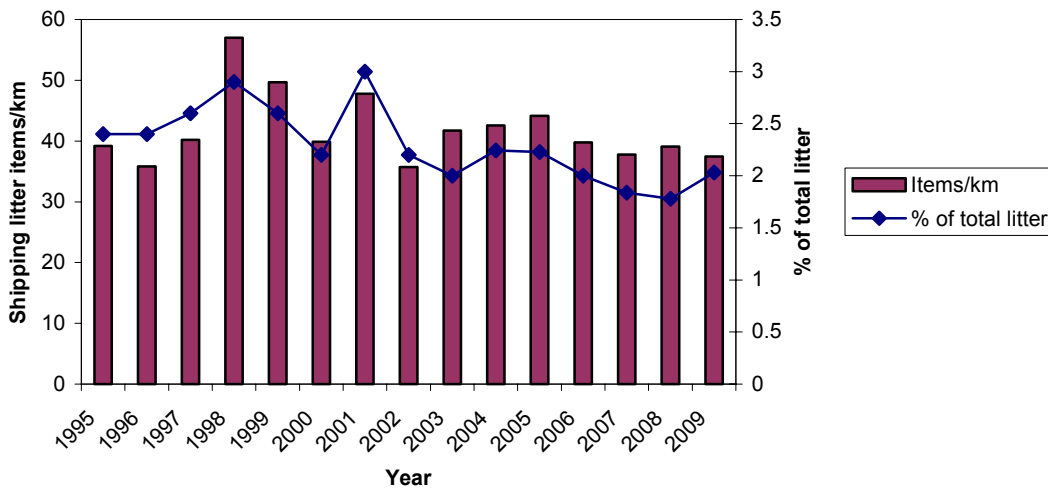
3.5.5 Shipping Litter

Litter from shipping includes oil drums, aerosol cans, crates, pallets and strapping bands. The number of shipping related items found decreased slightly from 39/kilometre in 2008 to 38/kilometre in 2009 (figure 15). Shipping items represented 2.0% of total litter found in 2009.

Reports from Beachwatch 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 addition, organisers conducting surveys in South East recorded kinder toys and other items still coming ashore from the MSC Napoli, the cargo vessel that grounded off the Dorset coast in January 2006.

In areas close to shipping lanes, levels of shipping litter are much greater. In the South West for example, the density of shipping litter found is much higher than the UK average at 67 items/kilometre of beaches surveyed.

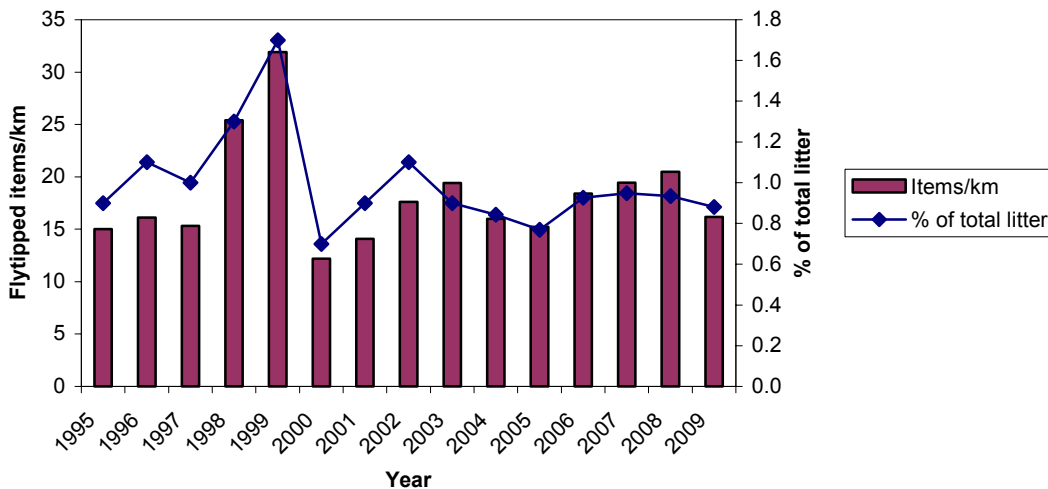
Figure 15: Shipping litter items found during Beachwatch 1995 – 2009.



3.5.6 Fly Tipped Litter

Fly tipping accounts for a small proportion of litter recorded in Beachwatch 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 decreased from 21 items/kilometre in 2008 to 16 items/kilometre in 2009. The percentage of total litter caused by fly tipping remained the same at 0.9% (table 10, figure 16).

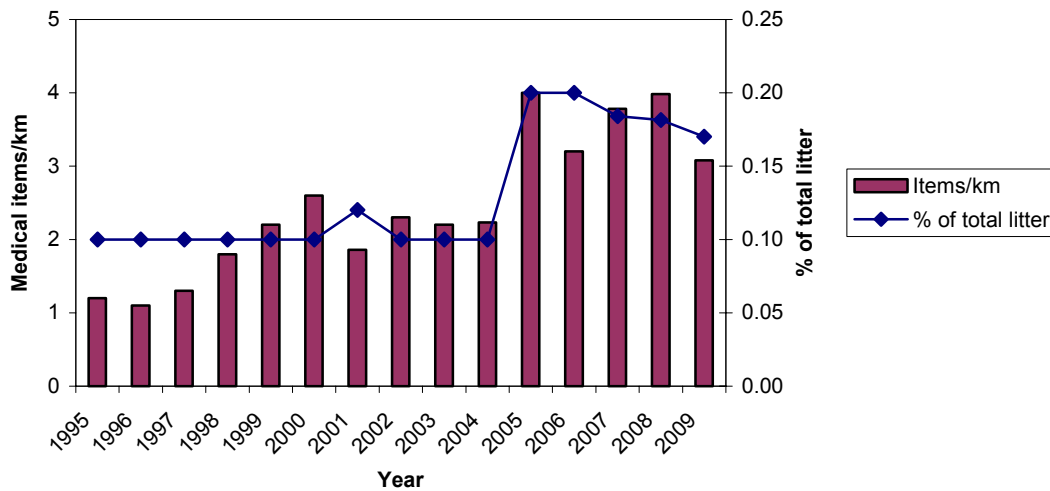
Figure 16: Fly Tipped litter found during Beachwatch 1995 – 2009.



3.5.7 Medical Items

The density of medical litter items has decreased from 4.0 items/kilometre in 2008 to 3.1 items/kilometre in 2009 (figure 17). Syringes are one of the most hazardous items collected and recorded during Beachwatch surveys. A total of 161 syringes were recorded in MCS Beachwatch Big Weekend 2009, an average of 0.9 per kilometre surveyed.

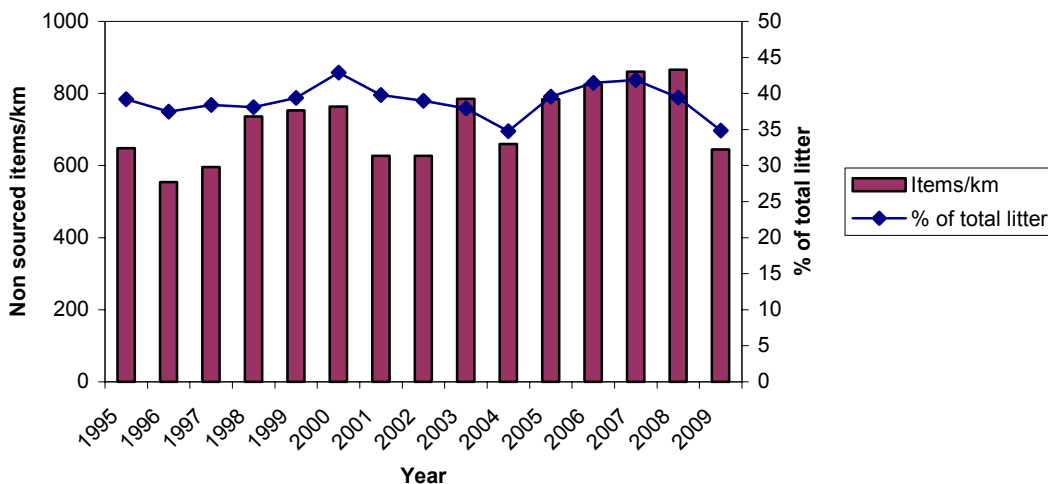
Figure 17: Medical items found during Beachwatch 1995 – 2009.



3.5.8 Non-Sourced Litter

Although the process of sourcing litter continues to be refined each year as further research is conducted, 34.9% of all items recorded in MCS Beachwatch Big Weekend 2009 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 Beachwatch 1995 – 2009.



3.6 Country and Regional Variations in Litter

For the purposes of the Beachwatch data analysis the UK is divided into England, Wales, Scotland, Northern Ireland and the Channel Islands. England is then further sub-divided into 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 2009 the highest overall litter density recorded was in Wales with 3,084 items/kilometre, representing a 21% increase compared to Beachwatch 2008 (2,550 items/kilometre).

Scotland had the second highest litter levels, which have fallen 26% from 2008 (2,581 items/kilometre) to 1,907 items/kilometre in 2009. England had the third highest litter levels, 1,778

items/kilometre, representing a 20% reduction compared to figures in Beachwatch 2008 (2,219 items/kilometre).

Northern Ireland had the fourth highest average litter density level, 1,775 items/kilometre representing an 89% increase compared to the 2008 figure of 940 items/kilometre.

The Channel Islands, had the fifth highest litter density, 948 items/kilometre representing a 34% decrease compared to Beachwatch 2008 (1446 items/kilometre).

Within England, the greatest density of litter was recorded, as in previous years, in the South West, where 3,269 items/kilometre were recorded, followed by the North West (2,256/kilometre), South East (1,446/kilometre) and North East (1,166/kilometre). When compared to Beachwatch 2008, average litter densities decreased in all regions with the exception of the North West.

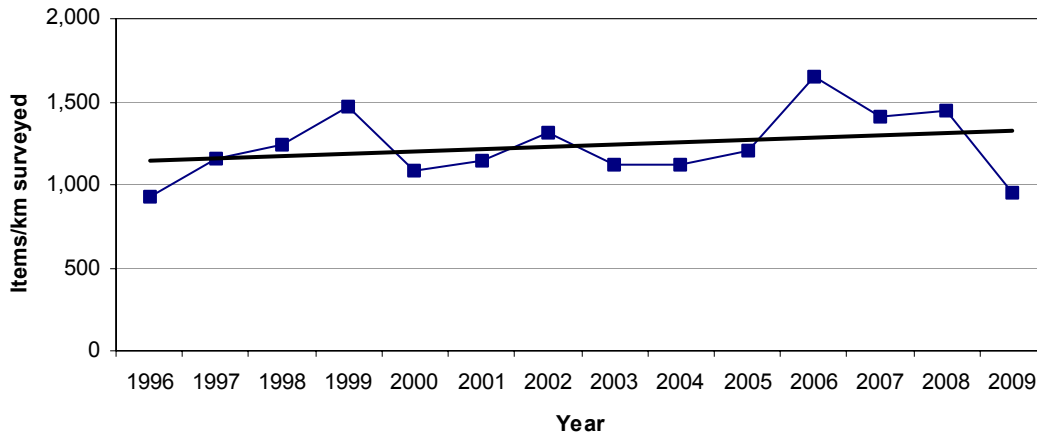
Table 11: Country and regional variations in litter density in Beachwatch 2005 – 2009.

Region	No. of beaches surveyed	Total no. of volunteers	Total litter items	Total length surveyed (kilometre)	Items/kilometre in 2009	Items/kilometre in 2008	Items/kilometre in 2007	Items/kilometre in 2006	Items/kilometre in 2005
Country									
Channel Islands	33	347	17,310	18.25	948.75	1446.02	1414.53	1646.18	1207.20
Northern Ireland	13	146	11,893	6.70	1775.07	940.16	1057.08	624.60	1877.05
Scotland	61	821	46,763	24.52	1907.45	2581.42	2727.84	2091.71	1747.56
Wales	73	728	59,226	19.20	3084.21	2549.89	2654.80	2524.82	1753.03
England (total)	217	2,613	206,959	116.36	1778.62	2460.85	2094.34	2084.29	2148.43
England Regions									
NE England	41	487	28,967	24.85	1165.91	1459.77	1322.46	1620.58	1231.56
NW England	14	124	15,602	6.92	2256.25	1658.76	1983.19	1926.52	1579.05
SE England	102	1,224	90,539	62.62	1445.82	1941.29	1841.71	1604.40	1846.99
SW England	60	778	71,851	21.98	3269.22	4783.57	3230.02	3185.65	3936.12
UK Total	397	4,655	342,151	185.02	1849.23	2195.15	2053.72	1988.70	1981.00

Channel Islands

A total of 17,310 litter items were collected on 33 beaches (23 on Guernsey, 5 on Herm Island, 1 on Alderney, 2 on Jersey and 2 on Sark) over a total length of 18.2 kilometre. An average of 949 litter items/kilometre were recorded, lower than the UK average of 1,849 items/kilometre (figure 19) and lower than results in 2008 (1446 items/kilometre) representing 34% decrease in litter levels.

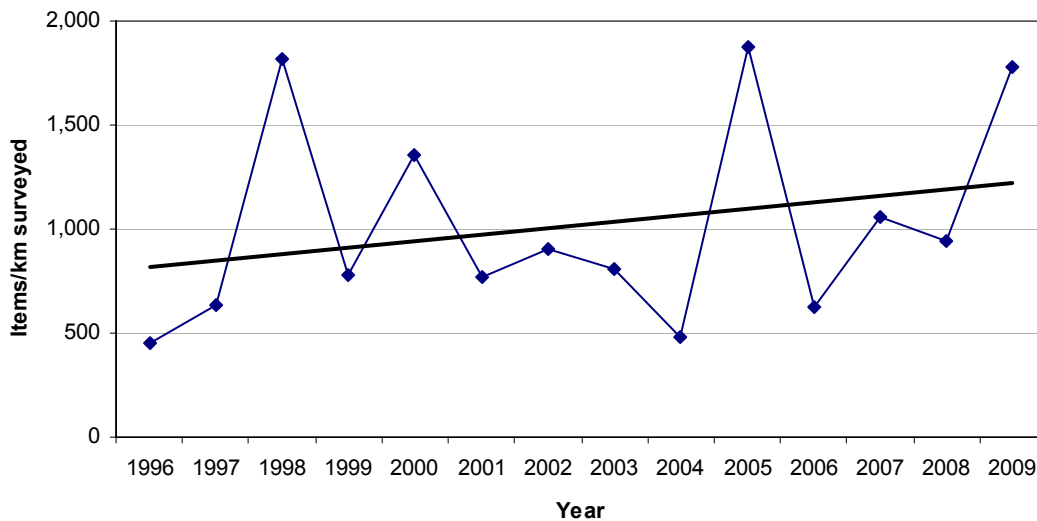
Figure 19: Mean items/kilometre in the Channel Islands for Beachwatch surveys 1996 – 2009.



Northern Ireland

A total of 11,893 items of litter were collected on 13 beaches over a total length of 6.7kilometres. On average 1,775 items/kilometre were recorded, less than the UK average (1849 items/kilometre) but higher than results in 2008 (940 items/kilometre) representing an 89% increase in litter density this year.

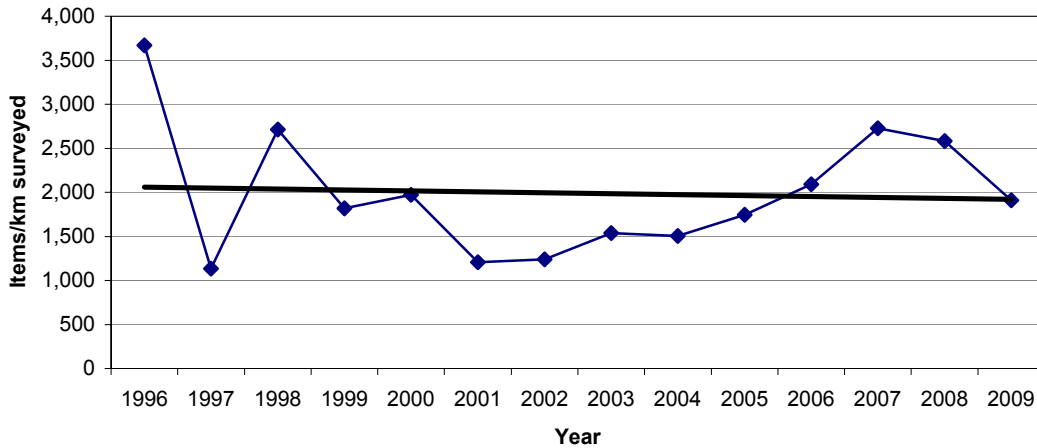
Figure 20: Mean items/kilometre in Northern Ireland for Beachwatch surveys 1996 – 2009.



Scotland

61 beaches took part in MCS Beachwatch Big Weekend 2009 in Scotland. A total of 46,763 litter items were collected over a total length of 24.5 kilometre. On average 1,908 items/kilometre were recorded, higher than the UK average of 1,849 items/kilometre, representing a drop of 26% from 2008. The overall litter density figure in Scotland falls to 1,678 items/kilometre when data from East Bay Helensburgh beach is removed from analysis.

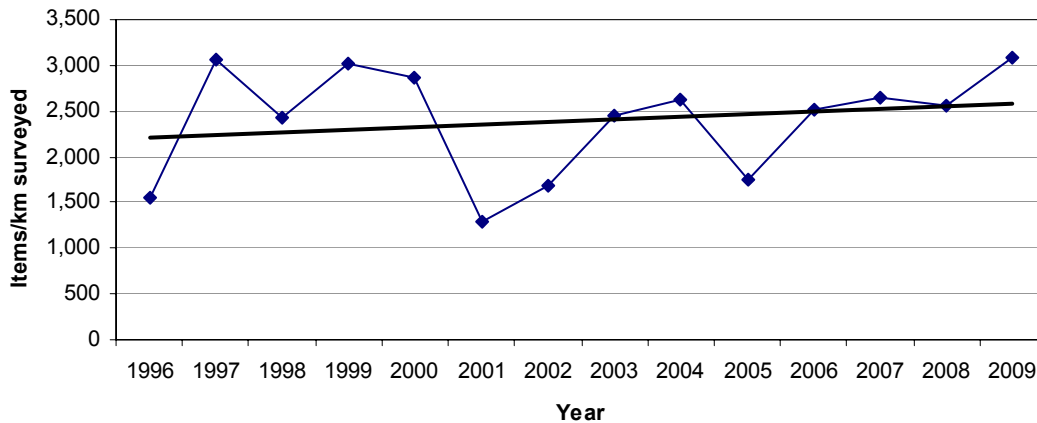
Figure 21: Mean items/kilometre in Scotland for Beachwatch surveys 1996 – 2009.



Wales

A total of 59,226 litter items were collected from a record number of 73 surveyed beaches in Wales. An average of 3,084 litter items/kilometre were recorded (the highest average litter density levels ever recorded) compared to 2,550 in 2008 (figure 22) representing a 21% increase.

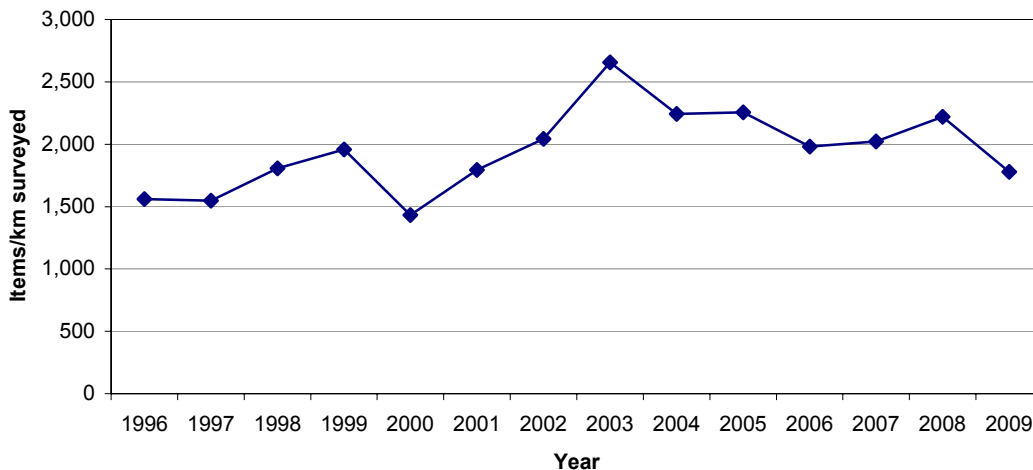
Figure 22: Mean items/kilometre in Wales for Beachwatch surveys 1996 – 2009.



England

A total of 206,959 litter items were collected on 217 beaches over a total length of 116.4kilometre. The density of litter in England was 1,779 items/kilometre, just lower than the UK average of 1,849 items/kilometre, representing a 20% decrease when compared to 2008 figures (2461 items/kilometre).

Figure 23: Mean items/kilometre in England for Beachwatch surveys 1996 – 2009.



North East

A total of 28,967 items of litter were collected from 41 beaches over a total length of 24.8kilometre. On average 1,166 items of litter/kilometre were found, lower than the UK average (1,849/kilometre) representing a decrease of 20% compared to 2008 figures (1,460/kilometre).

North West

A total of 15,602 items of litter were collected from 14 beaches over a total length of 6.9kilometre. On average 2,256 items/kilometre were found, higher than the UK average (1,849/kilometre), representing a 36% increase compared to 2008 figures (1,659 items/kilometre).

South East

A total of 90,539 items of litter were collected from 102 beaches over a total length of 62.6kilometre. On average 1,446 litter items/kilometre were found, lower than the UK average (1,849/kilometre), and 26% less than in 2008 (1,941 items/kilometre).

South West

A total of 71,851 litter items were collected from 60 beaches over a total length of 22.0kilometre. On average 3,269 items/kilometre were recorded, higher than the UK average (1,849/kilometre) representing a 32% decrease compared to 2008 average figures (4,784/kilometre)

3.6.2 Regional Variations in Litter Sources

The sources of litter was analysed for all of the UK countries and regions (table 12).

The major litter source in all of the UK countries and England regions was public litter (figures 24 and 25). The second most common source was fishing litter in all cases except Scotland. Wales had particularly high levels of fishing litter and the Channel Islands had particularly low levels of sewage related debris.

Table 12: Country and regional sources of litter recorded during Beachwatch 2009

UK Region	Public		Fishing		SRD		Shipping		Fly-tipped		Medical		Non-sourced	
Country	%	Items/ kilometre	%	Items/kilometre	%	Items/kilometre	%	Items/kilometre	%	Items/kilometre	%	Items/kilometre	%	Items/ kilometre
Channel Islands	36.4	345.0	17.9	170.0	0.9	8.3	1.8	16.8	0.6	5.7	0.2	1.6	42.3	401.3
Northern Ireland	53.4	947.5	7.7	136.3	7.6	134.3	2.2	38.5	0.5	9.1	0.2	3.7	28.5	505.7
Scotland	42.9	817.8	7.0	133.4	19.3	368.4	1.8	34.0	1.0	18.3	0.2	3.6	27.9	532.0
Wales	32.9	1,013.6	26.8	827.0	3.4	106.4	1.9	58.4	0.4	11.4	0.1	4.4	34.5	1,063.1
England (total)	43.4	772.3	13.8	245.0	3.2	56.2	2.1	37.9	1.0	18.6	0.2	2.9	36.3	645.8
England Region														
NE England	56.9	663.3	7.7	89.3	2.8	32.6	1.4	16.7	2.6	30.2	0.3	3.1	28.4	330.8
NW England	44.0	992.3	13.7	309.0	8.6	194.2	1.8	41.6	1.2	26.2	0.1	2.7	30.6	690.1
SE England	43.8	633.7	14.0	203.1	3.4	48.6	2.5	35.7	0.7	10.3	0.1	1.8	35.5	512.6
SW England	37.3	1,221.0	15.9	520.0	1.9	60.8	2.0	67.0	0.8	26.7	0.2	6.1	41.8	1,367.6
Overall averages	41.5	767.6	15.1	279.3	5.4	100.9	2.0	37.5	0.9	16.2	0.2	3.1	34.9	644.8

Channel Islands

Litter originating from the public accounted for 36% of all litter found and 18% was from fishing. Just 0.9% of the litter was sewage related debris, compared to the UK average of 5%.

Northern Ireland

Items originating from the public dominated the litter on Northern Ireland, forming 53% of all litter found.

Scotland

43% of all Scottish litter originated from the public and 7% from fishing activities. 19% of litter was sewage related debris, much higher than the 5% UK average.

If the results of East Bay Helensburgh beach (which was particularly badly affected by SRD litter) are removed SRD makes up 9% of all litter – still higher than the UK average.

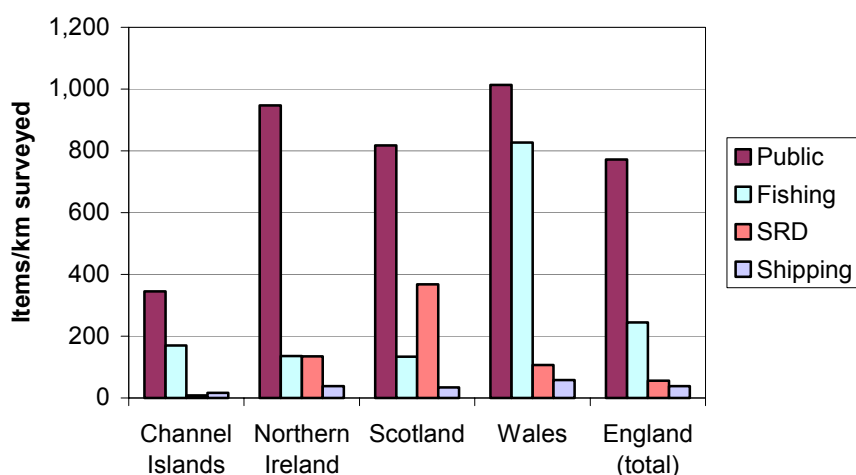
Wales

27% of all litter in Wales originated from fishing activities, much higher than the UK average of 15%. Public litter comprised of 33% of all litter and SRD was 3%, lower than the 5% UK average.

England

Public litter on English beaches made up 43% of all litter, and fishing contributed 14%. SRD was slightly lower than the UK average at 3%.

Figure 24: Major sources of litter in different regions of the UK in Beachwatch 2009.



Litter sources in English regions.

North East

The highest proportion of public litter was found in the North East with 57% of all litter coming from the public. This is much higher than the UK average of 42%. 2.6% of all litter on North East beaches was fly tipped – this was also the highest of any England region or UK country.

North West

Public litter dominated litter on beaches in the North West with 44% of all litter coming from this source. Sewage related debris was high at 9% compared with the UK average of 5%.

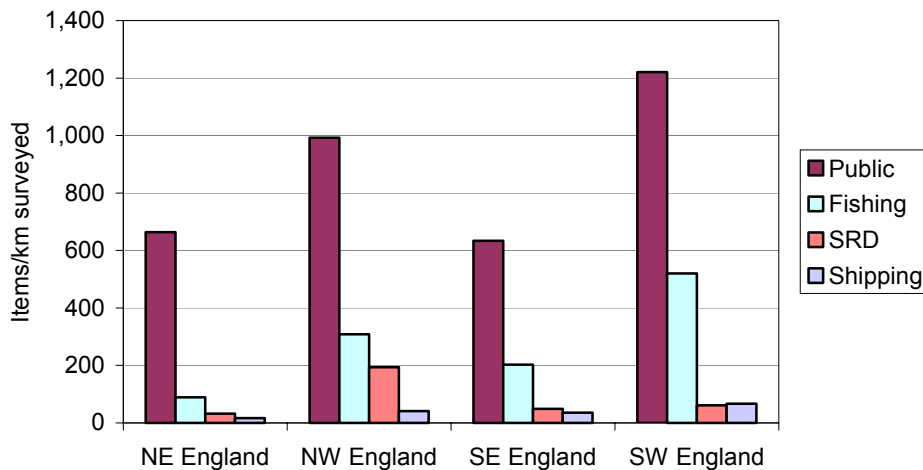
South East

44% of all litter came from the public. Shipping litter was the highest of any England region or UK country at 3%.

South West

SRD was low at 2% and public litter made up 37% of all litter, which was lower than the UK average. Fishing litter formed 16%, which was higher than the UK average.

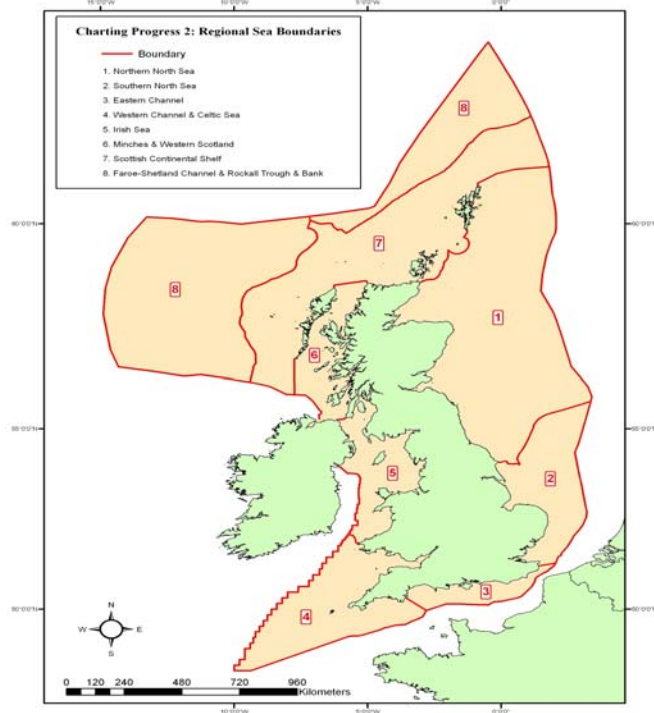
Figure 25: Major sources of litter in different regions of England in Beachwatch 2009.



3.6.3 UK Regional Seas

In 2004, Defra compiled a report on the state of UK seas, Charting Progress (Defra 2005), in which Beachwatch data was used to provide an indicator of one of the key human impacts on the marine environment. For the purposes of the report, UK waters were separated into 7 regional seas (Figure. 26). In 2008 Defra began work on Charting Progress 2 an update of this report on the state of our seas. MCS are lead author on the litter chapter.

Figure 26: Map of UK Regional Seas © Defra.



The major litter sources in each regional sea of the UK generally showed that most sourced litter could be attributed to public litter (Table 13, Figure. 27), followed by fishing, SRD and shipping. However, there were several exceptions to this. In region 7, fishing litter contributed 35% of litter, compared to 24% of public litter. Region 7 also had the highest contribution of shipping litter of 7% and the lowest amount of SRD at 0.7%. However only 2 beaches were surveyed in region 7 so the results cannot be used to give a representative indication of beach litter in this area.

Region 6 had the highest contribution of public litter with 54% but region 4 had the highest density of public and fishing litter (excluding region 7) at 1927/kilometre and 1642/kilometre respectively. Region 5 had the highest density of SRD (302/kilometre).

Figure 27: Major sources of litter in different UK regional seas in Beachwatch 2009.

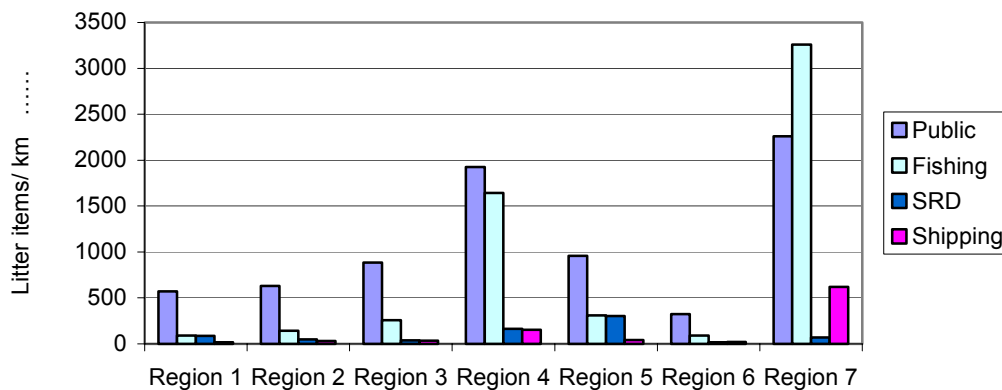


Table 13: Sources of litter recorded during Beachwatch 2009 in 7 regional seas areas.

Source		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Regional Seas total
Public	No of items	22,196	29,304	30,678	22,266	30,168	884	226	135,722
	% of total	49.6	47.0	50.5	27.3	41.5	53.5	24.1	41.9
	Items/kilometre	571.5	629.2	883.5	1926.5	956.1	323.8	2,260.0	7,550.6
Fishing	No of items	3,528	6,684	8,975	18,983	9,823	249	326	48,568
	% of total	7.9	10.7	14.8	23.2	13.5	15.1	34.8	17.1
	Items/kilometre	90.8	143.5	258.5	1642.4	311.3	91.2	3,260.0	5,797.8
SRD	No of items	3,365	2,342	1,325	1,888	9,530	52	7	18,509
	% of total	7.5	3.8	2.2	2.3	13.1	3.1	0.7	4.7
	Items/kilometre	86.6	50.3	38.2	163.4	302.0	19.0	70.0	729.5
Shipping	No of items	730	1,436	1,249	1,759	1,333	55	62	6,624
	% of total	1.6	2.3	2.1	2.2	1.8	3.3	6.6	2.8
	Items/kilometre	18.8	30.8	36.0	152.2	42.2	20.1	620.0	920.2
Fly-tipped	No of items	917	372	394	630	571	4	2	2,890
	% of total	2.0	0.6	0.6	0.8	0.8	0.2	0.2	0.8
	Items/kilometre	23.6	8.0	11.3	54.5	18.1	1.5	20.0	137.0
Medical	No of items	98	94	113	97	134	4	0	540
	% of total	0.2	0.2	0.2	0.1	0.2	0.2	0.0	0.2
	Items/kilometre	2.5	2.0	3.3	8.4	4.2	1.5	0.0	21.9
Non-sourced	No. of items	13,951	22,163	18,016	36,038	21,101	405	314	111,988
	% of total	31.2	35.5	29.7	44.1	29.0	24.5	33.5	32.5
	Items/kilometre	359.2	475.8	518.9	3118.0	668.7	148.4	3,140.0	8,429.0
Total Items		44,785	62,395	60,750	81,661	72,660	1,653	937	324,841
Total length		38.84	46.58	34.72	11.56	31.55	2.73	0.1	166.1
Total Items/kilometre		1,153.1	1,339.6	1,749.6	7,065.3	2,302.8	605.5	9,370.0*	23,586.0

*Only 2 beaches were used for Region 7 and a very high litter density is a result of the small sample size.

3.7 Underwater Clean Ups

Nine underwater litter cleans and surveys were conducted as part of MCS Beachwatch Big Weekend 2009. 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 2009 underwater clean ups.

Beachwatch 2009 underwater cleans	
Number of sites surveyed	9
Number of volunteers	284
Number of bags	192
Total number of items	14,559
Distance surveyed (kilometre)	3.8
Items / kilometre	3,856.7

The main sources of the litter found on these nine sites were non-sourced (36.2%), public (30.5%) and fishing (29.2%). Fishing litter is considerably higher than for the main Beachwatch results (15.1%) and items such as nets > 50cm, rope and anglers line made up the majority of the underwater fishing litter.

3.8 Unusual Items

Here are just some of the more unusual items found during Beachwatch 2009:

- One burnt out 2-seater settee
- A musical balloon 'How Sweet It Is To Be Loved By You'
- Joke severed finger
- Half a boomerang
- Two lottery tickets
- Merchant sailors hat
- A message in a bottle from Lowestoft Fisheries Laboratory – “it must have been pretty old as it made reference to the USSR!”
- Geology hammer
- Spring onions
- Tractor tyre
- Laboratory incubator
- A message in a glass bottle from 'Sly Sally'
- 1 set (fake) vampire's teeth

3.9 Dead Animals

A total of 81 animals were found dead on beaches during MCS Beachwatch Big Weekend 2009 (tables 15, 16 and 17). The most commonly found dead animal was gulls.

Table 15: Number of dead mammals found in Beachwatch 2009.

Total	Mammals
6	Seal
5	Rabbit
2	Sheep
1	Goat
1	Rat

Table 16: Number of dead birds found in Beachwatch 2009.

Total	Birds
20	Gulls
8	Guillemots
7	Unspecified birds
4	Gannet
2	Pheasants
1	Buzzard
1	Oystercatcher
1	Swan

Table 17: Number of dead fish and invertebrates found in Beachwatch 2009.

Total found	Fish, Invertebrates and Amphibians
10	Jellyfish
8	Dog fish
3	Unspecified fish
1	Conger eel

3.10 Foreign Litter

At least 30 litter items from 11 different countries were recorded during MCS Beachwatch Big Weekend 2009 (table 18). 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 and Spain were the most common source of foreign litter items.

Table 18: Litter found outside the country of origin in Beachwatch 2009.

Country	Number of Items	Description
France	6	Plastic tray, pineapple, newspaper, cream box, yoghurt containers
Spain	6	Plastic items, fishing tags, milk bottle, margarine tub
China	3	Chinese newspaper, drink cans
Netherlands	3	Tetrapak carton, juice cartons
USA	3	California calamari box, seafood packaging, plastic tag with label: "US Dept of Environment Protection, Florida"
Denmark	2	Drink carton, food wrapper
Germany	2	Sweet wrappers
Holland	2	Packaging
Ireland	1	Fishing crate
Russia	1	Tube of cream
Saudi Arabia	1	White chemicals bag

3.11 Weather

During the Beachwatch weekend, UK countries and England regions experienced a mix of onshore and offshore winds. There was a light wind and the sea was calm in all UK regions except the North West of England where the sea was described as moderate (table 19).

Table 19: Weather conditions in different regions of the UK recorded during Beachwatch 2009.

Region	Average wind direction	Average wind speed	Average sea state
Channel Islands	Offshore	Light	Calm
Northern Ireland	Onshore	Light	Calm
Scotland	Onshore	Light	Calm
Wales	Onshore	Light	Calm
England	Onshore	Light	Calm
England:			
North East	Offshore	Light	Calm
North West	Onshore	Light	Moderate
South East	Onshore	Light	Calm
South West	Offshore	Light	Calm

Weather summary prior to Beachwatch:

17th September: A ridge of high pressure gave a fine day in most areas of the British Isles. The best of the sunshine was in NW England, west Wales and SW England. By contrast, it was rather cloudy in eastern and central areas of England, with a fair amount of cloud reaching as far west as east Wales too. The north and east of Scotland was also quite cloudy and a weak warm front gave a little light rain northern Scotland. However, there were sunny spells in south-west Scotland as well as in Northern Ireland. Temperatures were close to the September average in most places, warmest in Central Southern England where they reached 20C. There was a slight air frost in parts of the Lake District early in the day in the clear skies.

18th September: With high pressure centred over northeast England, most places had another fine day. Clear skies gave another quite cold start to the day, especially in eastern Scotland where there was a touch of ground frost in places together with a few patches of mist and fog. This was also the sunniest part of the country during the day with 10 hours of sunshine in places. Much of England was quite cloudy and daytime temperatures were rather lower than the previous day as a result. In the south of England there were a few light showers later on. Sheltered parts of west Wales were quite bright. Northern Ireland and western Scotland were also quite cloudy. The highest temperature was 21C in East Sussex but most places were several degrees cooler than this.

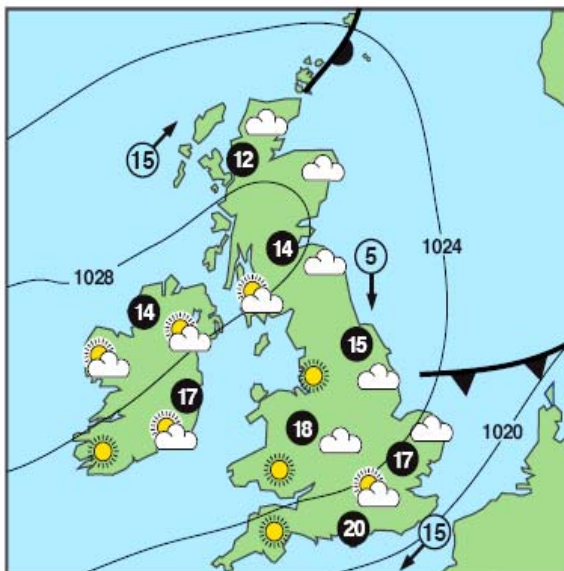


Figure 28: UK weather map for Thursday 17th September 2009

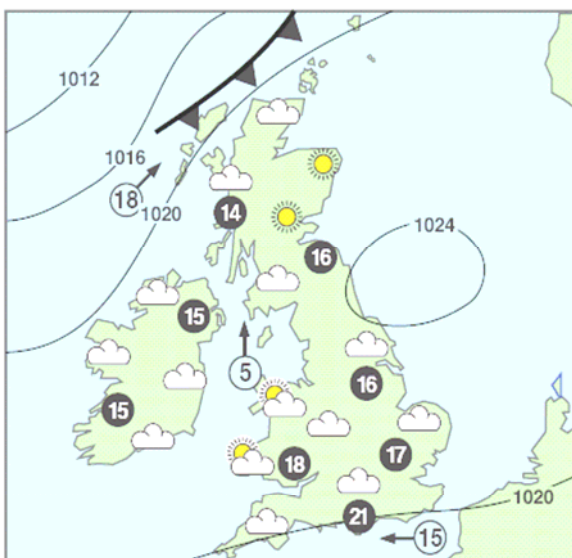


Figure 29: UK weather map for Friday 18th September 2009

Weather Summary from Rain Today kindly provided by MeteoGroup UK, maps from MeteoGroup and PA Solutions.