CleanAtlantic

Tackling Marine Litter in the Atlantic Area

WP 4: Marine litter in Atlantic Area

Activity 4.1 – Regional characterisation of marine litter in the Atlantic Area

Deliverable: Overview of marine litter status in the Atlantic Area: beach litter

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Overview of marine litter status in the Atlantic Area: 1. Beach Litter

Executive summary

The EU project CleanAtlantic has been launched aiming to protect biodiversity and ecosystem services in the Atlantic Area by improving capabilities to monitor, prevent and remove marine litter. The project will also contribute to raise awareness and change attitudes among the stakeholders and to improve marine litter managing systems. In this context, the present study proposes to gather and analyse beach litter data of the Atlantic Area and identify knowledge gaps. The data collection complements the OSPAR Intermediate Assessment of Good Environmental Status (GES) and supports the implementation of the Marine Strategy Framework Directive (MSFD) by feeding into the revision of the initial GES assessments in terms of marine litter. In addition, it supports the evaluation of the degree of adequacy of the MSFD Programmes of Measures.

In the present study, a characterisation of beach litter abundance and composition on the Atlantic Area shoreline is performed at different geographical scales (Atlantic area, OSPAR region, country and beach) over the time period 2016-2019 in order to assess its current beach litter pollution status. To do this, a set of statistical indicators is proposed, including the median abundances and the parts of litter categories (i.e. the materials of the different litter types), groups of interest (including groups of litter items targeted by measures) and specific litter types (also targeted by measures) in the total count in litter items. It also allows achieving the distribution of the litter abundance and the ranking of the litter types (top 5, top 10).

The study confirms beach litter is abundant in the Atlantic Area with a median total abundance of 172 litter items/100 m over 2016-2019. This value is much higher than the threshold value (TV) of 20 items/100 m proposed at the European level by MSFD Technical Group on Marine Litter (TG ML), indicating marine litter presents a risk for the marine environment and coastal activities. A decrease of 88 % of the total beach litter pollution is required to reach the proposed TV. This implies that strong and efficient measures to reduce the presence of litter in the marine environment, especially plastics as they represent 89.7 % of beach litter in the Atlantic Area. Similar results are obtained at country subregion level with needed decreases to the EU TV comprised between 71 % and 96 %.

Single Use Plastics (SUP) and Fishery-related litter items (FISH) groups represent 39.0 % and 18.9 % of the total count respectively at the Atlantic Area level, confirming these groups are abundant and include problematic items also observed in other EU regions. It is reinforced by the fact that specific SUP and FISH items are abundant and ranked in the top 10.

Though nearly 60 % of the litter items in the Atlantic Area appear to be targeted by measures, 40 % still need reduction actions. These remaining items are mainly constituted of non-identifiable fragments (19.8 % of the litter pollution observed at Atlantic Area scale) and “other plastic/polystyrene items” (4.7 % of the total count). This observation exposes that the OSPAR list of items still needs to be completed by further items that must be characterised.

When looking at specific groups (like SUP and FISH) at OSPAR region and country scales, this study shows geographical differences in beach litter composition which could be related to different activities in the Atlantic Area.

In a further level of detail, the results expose an important heterogeneity in abundance and composition between the sites and the seasons, which could be explained by several factors (environment, activities, meteorological conditions, etc.). Thus, it is important to have a sufficient spatial and temporal coverage of the area in order to assess the beach litter pollution at subregional level and beyond.

The trend of litter abundance is investigated and depends on the site observed, which brings us back to the importance of having good spatial and temporal coverage of the Atlantic Area shoreline in order to correctly determine the trends at country, region and area scales. Then, it may also reflect the importance of having long time series because at this point, it is not possible to status on the evolution of beach litter pollution. As an illustration, the MSFD TG ML expert group recommends using 6-year cycles for their different assessments.

The present study also allows identifying existing gaps hindering a precise assessment of beach litter pollution. These gaps are:

- More researches are needed to improve the knowledge of plastic fragment composition and sources;
- Further investigations should be made to improve our knowledge of “other plastic/polystyrene items” and assess if they require to be targeted by action and as a consequence, if they need to be individually monitored;
- It is recommended to have sufficient number of sites monitored on the long time to cover the spatial and temporal variations within Atlantic Area in order to obtain a representative assessment of beach litter pollution;
- It is also recommended to adapt the monitoring litter list to existing measures in order to ensure a proper assessment of the efficiency of the measures (like polystyrene items);
- Sources of beach litter have not been identified in the present study because of a lack of methodology to properly identify these sources. The announced methodology developed in the future by the TG ML could lead to estimate the part of transboundary litter items of the present study that come from outside the Atlantic Area.

Overall, this study shows the importance to implement large scale monitoring using standardized methodologies in order to obtain fit-for-purpose data allowing the development of efficient actions to reduce marine litter pollution. Furthermore, these results show that beach litter is abundant in the Atlantic area, as in other areas of Europe, confirming that joint and strong action is required in Europe and with the neighbours in shared marine basins.

Introduction

Last decades, marine litter has become a global threat to marine ecosystems, particularly due to our method of consuming. Marine litter is ubiquitous in the environment and comes from many different causes and origins. Beach litter (or beach debris) is defined as any anthropogenic, persistent, solid material longer than 5 mm discarded, disposed, abandoned or lost in the marine and coastal environment and encountered on the coastlines. This litter can originate from the sea through deliberate or accidental losses from vessels (including cargos and waste), and be transported to and deposited on the coast from the sea by winds and water currents. It can be directly deposited on the coast by humans, e.g. tourists, fishermen or fly-tipping. Litter can also be deposited further inland on riverbanks, directly into rivers, on streets and in the countryside and consequently be transported by rivers and wind into the marine environment and onto beaches. In addition, sewage works may discharge litter items directly, or indirectly, via rivers and sewage outlets into the sea and these items can be washed ashore.

Marine litter can be potentially harmful as it can impact organisms at different levels of biological organisation and habitats in various ways namely; through entanglement in (Staffieri, E. et al., 2018; Poeta, G. et al., 2017; Künh, S. et al., 2015), or ingestion of litter items by individuals, resulting in death and/or severe suffering (Künh, S. et al., 2015; Künh, S. and van Franeker, J.A., 2012); through chemical and microbial transfer (Renzi, M. et al., 2019; Werner, S. et al., 2016); as a vector for transport of biota (Werner, S. et al., 2016) and by altering or modifying assemblages of species (Casabianca, S. et al., 2019; Werner, S. et al., 2016). Marine litter is a threat not only to marine species and ecosystems but also carries a risk to human health and has significant implications to human welfare, impacting negatively vital economic sectors such as tourism, fisheries, aquaculture or energy supply and bringing losses to individuals, enterprises and communities (Werner, S. et al., 2016). The higher the amount of beach litter items, the greater the risk is for the marine environment and human welfare.

Measures against marine litter are therefore needed. However, it requires data on litter pollution in order to assess its abundance, trends and composition. In addition to the importance of retrieving data, it needs to be harmonised across the regions and countries in order to study the impact of marine litter in a meaningful way. That is why regional and EU-wide conventions, such as Oslo-Paris Convention (OSPAR Convention; OSPAR, 1992), of which Commission is an Associated Partner of the consortium of the present project, and the Marine Strategy Framework Directive (MSFD; EU, 2008; EU, 2010) have been created in order to protect the marine environment and reduce the abundance of marine litter in Europe with a good cooperation between the members. The final aim is to achieve Good Environmental Status (GES) of the EU's marine waters. Within the MSFD, marine litter is one of the descriptor (DG10) that is used to achieve GES: "Properties and quantities of marine litter do not cause harm to the coastal and marine environment".

In this context, in 2016, the EU project CleanAtlantic has been launched aiming to protect biodiversity and ecosystem services in the Atlantic Area by improving capabilities to monitor, prevent and remove marine litter. The project will also contribute to raise awareness and change attitudes among the stakeholders and to improve marine litter managing systems (CleanAtlantic, 2020). Several objectives are expected, the main ones are:

- To draw a picture of current situation, existing knowledge, data and initiatives in the Atlantic regions and definition of gaps;
- Review of current systems to monitor and record marine litter, and to deliver protocols, tools and indicators to fill monitoring needs;

- Development of modelling tools to predict the origin, circulation, and fate of marine litter, and elaboration of regional maps of hotspots of accumulation using models, remote sensing technologies, and aerial, surface and underwater unmanned systems;
- To address prevention by developing best practices to reduce inputs from fishing and port sectors;
- To tackle removal of marine litter by implementing initiatives of fishing for litter, to reduce the presence of "abandoned lost and otherwise discarded fishing gears" on the sea-bed, and to develop best practices for routine beach litter clean-up by local authorities;
- To deliver training and awareness activities addressed to various audiences and to transfer project to competent authorities and key stakeholders to improve management and facilitate MSFD implementation.

Among all the presented objectives, the actions of the Work Package (WP) 4 of the CleanAtlantic project, "Marine Litter in the Atlantic Area", aim to gather and assess data, knowledge and gaps regarding marine litter in the Atlantic Area, to identify and map key stakeholders and associated initiatives. In addition, the WP aims to assess the economic impact of marine litter in coastal communities. Data available on the participating countries (main sources, input data, quantity and type of litter) are gathered and challenges and knowledge gaps are highlighted within the WP. Main stakeholders and associated initiatives are also mapped and socio-economic impacts of marine litter in the coastal communities are assessed. Key-actors and initiatives are also identified within the WP and the socioeconomic impact of marine litter in different sectors (fishing, tourism, etc.) is assessed. The present study is part of the WP4 (Action 1: "Regional characterisation of marine litter in the Atlantic Area") as it proposes to gather and analyse beach litter data of the Atlantic Area and identify knowledge gaps. The data collection complements the OSPAR Intermediate Assessment of GES and supports the implementation of the MSFD by feeding into the revision of the initial GES assessments in terms of marine litter. In addition, it supports the evaluation of the degree of adequacy of the MSFD Programmes of Measures.

Aim

The global aim of the present report is to improve the knowledge of the current state of beach litter in the Atlantic Area by characterising beach litter abundance along European Atlantic shoreline and its composition at different relevant geographical scales, from beach level to Atlantic Area level. In particular, this study aims at:

- Proposing a set of indicators allowing an assessment of beach litter pollution at the site, country, OSPAR region and Atlantic area level;
- Characterising litter pollution level and composition, and assess GES over the time period 2016-2019 at the involved scales;
- Identifying existing gaps hindering a precise assessment of beach litter pollution and elaborating recommendations to overcome these gaps.

Data sources

The analysis relies on a cohesive set of beach litter data issued from the OSPAR beach litter monitoring program (OSPAR, 2010). This program, initiated in 2010, provides the most extensive set of fit-for-purpose beach litter monitoring data in the North-East Atlantic, which includes the Atlantic Area. Data are collected from regular dedicated surveys carried out according to a standardized methodology described in OSPAR Guidelines (OSPAR, 2010). Four times a year (once per season), OSPAR countries monitor litter pollution on

survey beaches (OSPAR, 2017) which are selected according to specific criteria. The monitoring consists in collecting and identifying, in terms of amount and types of litter, all the litter items larger than 0.5 cm present within the same sampling unit of 100 m stretch of beach, from the water's edge to the back of the beach. All surveys are carried out in compliance with a defined quality assurance procedure and, once controlled and validated by OSPAR national coordinators, data are stored in the dedicated OSPAR beach litter database.

The dataset used for the present report was downloaded from the OSPAR beach litter database and went through a process of data cleaning prior to analysis (as described in the "Data processing" section).

Sites and surveys available

A set of **62 sites** is considered in the present study: 4 Irish sites, 18 British sites, 9 French sites, 12 Spanish sites and 19 Portuguese sites. Combining all these sites, **922 surveys** are available. Since many survey sites were created in the recent years, the report focuses on the four-year period 2016-2019 which is the most recent one with a high and stable number of monitored beaches. Sites with less than 8 surveys over the time period 2016-2019 were excluded from the analyses. Names and coordinates of the sites considered in the study, along with surveys available, are listed in Table 6, Annex 1.

Data processing

1. Definition of the groups and data clean-up

The data are presented in OSPAR format (OSPAR, 2010), which includes 112 litter types classified into 10 categories according to the material they are made or their use. The total abundance (**TA**), or total count, represents the sum of all litter items collected in the survey. It reflects the general level of litter pollution found on the sites and upper geographical scales.

The 10 OSPAR litter categories are: Plastic/Polystyrene (**PLASTIC**), Rubber (**RUBBER**), Cloth (**CLOTH**), Paper/Cardboard (**PAPER**), Wood (machined) (**WOOD**), Metal (**METAL**), Glass (**GLASS**), Pottery/Ceramics (**POTTERY**), Sanitary waste (**SANITARY**) and Medical waste (**MEDICAL**). Note that the litter type "Cigarette butts" (OSPAR id [64]), which is originally counted in the PAPER category by OSPAR, is counted here in PLASTIC category. In addition, sanitary wastes and medical items will be associated to plastic/polystyrene items as they are mainly made of plastic.

The following litter groups are also considered because they are targeted by existing or future measures. So, they are relevant to evaluate measures efficiency:

- The **Single use plastics** category (**SUP**) includes all the plastic litter items made for a single use, as defined by the MSFD Technical Group on Marine Litter (TG ML; Hanke, G. et al., 2019). It includes plastic yokes, plastic bags, small bags, bag ends, plastic bottles and containers (drink, cleaner, cosmetic, food and fast-food), plastic caps, lids and rings, crisps packets, sweets wrappers, lolly sticks, cups and cup lids, cutlery, trays, straws, stirrers, cigarettes butts and filters but also sanitary items such as cotton bud sticks, towels, panty liners, backing strips, tampons and applicators, and toilet fresheners.
- The **fishery-related litter** category (**FISH**) refers to litter issued from fishing and aquaculture activities, as defined by the TG ML (Hanke G. et al, 2019). It includes fish boxes, octopus and crab/lobster pots/tags, light sticks, fish tags, mussels nets, oyster nets, oyster trays, Tahitians/mussel sheeting, ropes, strings

and cords (all diameters), nets and pieces of net, fishing lines/nets, monofilament and all other fishing related items. This category also considers buoys and floats used for fishing nets;

- The **plastic bags** category (**BAG**) includes plastic bags (all sizes) and bag ends;

The **plastic fragments** category is also assessed, including plastic/polystyrene fragments (2.5-50 cm) and plastic/polystyrene fragments (> 50 cm).

The list of litter types considered and their assigned categories are presented in Table 7, Annex 2.

In line with the TG ML recommendations (Hanke, G. et al., 2019), the data recorded for each site were cleaned up as follow:

- Some litter types were excluded from the analysis. Firstly, the small plastic fragments (< 2.5 cm, OSPAR id [117]) were removed because the counting method can differ from a site to another and sometimes it is not counted, which can induce unreliable results. “Other wood” (OSPAR id [74] and [75]) and “Other paper” (OSPAR id [67]) were also removed from the datasets like other organic biodegradable material. Finally, pollutants such as paraffin and wax were also excluded because the recorded data are incomparable from one site to another;

- Only 100-m surveys are used because the 1000-m surveys are only focused on large litter items (> 50 cm), and not anymore considered suitable at OSPAR level.

In addition, as some survey sites are surveyed at a higher frequency (monthly or even weekly) such as in France, surveys were summed over each of the four seasons in order to harmonize the datasets of the different sites in a seasonal format.

2. Geographical extent and spatial scales considered

As the present analysis is dedicated to the sites of the Atlantic Area (the 5 countries involved in the CleanAtlantic project), different spatial scales and aggregation levels are considered in the statistical description:

- Beach scale (basic scale);
- Country level (aggregation of several sites);
- OSPAR region level (aggregation of several sites over several countries);
- Atlantic Area level (all sites).

First of all, **every site** is individually described. For each site, the different surveys carried out (from 8 to 16 depending on the beach involved and the available surveys) are compiled in order to produce descriptive indicators which allow characterising the type of litter items generally collected. It is also called temporal aggregation over the considered period in (Hanke, G. et al. 2019).

Then, three integrated spatial aggregations are performed:

- a first aggregation at the **country level**, in order to analyse and compare each of the 5 countries involved in CleanAtlantic, i.e. from North to South: Ireland, UK, France, Spain, Portugal;

- a second aggregation at the level of each of the 4 **OSPAR regions**: Celtic Seas, Southern North Sea, Bay of Biscay and Iberian Coast and Wider Atlantic;

- a last aggregation describes **the entire Atlantic Area**. All of the 62 sites are aggregated and the different calculations show the general state of the Interreg Atlantic Area.

3. Descriptive statistics and indicator estimations

All the calculations performed in the present analysis are described in this section. The main results obtained for each spatial scale are summed up in individual sheets. In total, 73 sheets are available in Annex 4. The calculation formulas as well as the template of the graphics developed for every scale (site, country, OSPAR region and Atlantic Area) are presented in Annex 3.

3.1. Beach scale

For every site, the **median total abundance** and the **average total abundance** in litter items is determined, representing the median and the mean obtained from the total abundances (in number) of litter items per 100 m based on all the surveys carried out on the site. In addition, the **trend of total abundance** from 2016 to 2019 is calculated and represented with the abundances of the different surveys of the site.

The total abundance (median) of the site is compared to the abundances of the other sites of the country and the entire Atlantic Area. The **statistical distributions** of the country and Atlantic Area are represented as boxplots in the individual sheets where the total abundance of the involved site is highlighted in order to compare it with the others. The different boxplots are extended from the minimum total abundance recorded over the different sites to the maximum total abundance. In addition, 90 % of the recorded abundances are boxed between the 5-95 percentiles, which gives an idea on how the total abundances are distributed and dispersed.

The **10 OSPAR litter categories** are presented as a pie chart of the distribution of the total amount of litter items collected over the corresponding time period 2016-2019. The chart is based on the sum of the items of the categories over the four years. The sums of every category are evaluated as percentages of the total amount in litter items and represented in the chart.

The importance of the **four relevant litter groups** (single use plastics, fishery-related litter items, plastic bags and plastic fragments, groups selected to evaluate the measures efficiency and assess the importance of plastic fragments) is also determined through the analysis of their contribution to the total abundance per survey. These indicators are determined from medians of the sums of the values of the groups through the surveys of the beach and comparing it to the median beach total abundance.

In addition, **four specific litter types** are presented: cigarette butts, cotton bud sticks, balloons and hunting cartridges, as they are currently found on the shoreline - and for this reason they have been listed as single-use plastics (SUP) items in the last-year European SUP Framework Directive (SUPFD) - and they are easily identifiable. Their contribution to the total abundance is calculated in the same way as for the items in the top 5 ranking: the total amount of these items over the four years is determined and compared to the amount in litter items collected in the same time period.

The **top 5 of the most collected litter types** of the site is determined. The ranking is based on the "total abundance method" used in the TG ML report about top marine beach litter items in Europe (Addamo, A. et al., 2017). The total amount of the different litter types collected over the surveys carried out on the site is evaluated (sum of the number of items of each litter type over 2016-2019). Then, this sum is compared to the total number of items collected over the same period (sum of all the litter items collected over 2016-2019) and expressed as a percentage of the total abundance. The top 5 ranking is finally based on these ratios in order to present the most recurrent litter types present on the different beaches.

3.2. Country and OSPAR regions scales

The **statistics of upper scale** are evaluated by aggregating the results obtained at site level. As a result, the **median total abundance** and the **abundances of the other groups** (SUP items, FISH items, plastic bags and plastic fragments) are obtained from the medians of the median abundances of the sites. The average total abundance is obtained by meaning the average total abundances of the sites. The same calculations are performed for **each individual litter type**.

The distribution of the total abundance in the **10 OSPAR litter categories** is obtained by summing the total amount in litter items of the respecting categories over the four years.

The calculations for the **top 5 ranking** of the litter types are similar. Indeed, as it represents the parts of the different litter types in the total amount of items collected over the covered period (four years), the top 5 ranking of the upper scales is not obtained from medians of the involved sites. The parts of litter types in the total amount of the countries are obtained for each individual litter type by summing the amounts of every survey of every site involved in the upper scales (country or OSPAR region). Then, these sums are compared to the corresponding total amount of items in order to estimate their relative parts. The five first parts are thus presented in the ranking. The parts of the top 5 ranking represent the ratios of the different litter types in the total amount of items collected over the covered period of analysis.

The baselines (median total abundances) of the different sites of the country/OSPAR region are exposed and compared to the national statistics. It also allows comparing the scores of the sites to the threshold value (TV) proposed to European Union (20 litter items/100 m) by the MSFD TG ML.

3.3. Atlantic Area scale

The largest scale merges the sites of the Atlantic Area, i.e. all the 62 sites involved in the present analysis. The distribution of the 62 sites over the area and the number of surveys involved is exposed. The statistics and indicators are calculated in the same way as explained for the country and OSPAR region scales. The abundances of all the sites are faced with the EU TV and the statistics obtained for the five countries are compared to each other. The top 10 of litter items is also exposed with the contributions of the countries, which is naturally influenced by the number of surveys of each country.

Results

1. Atlantic Area statistics

1.1. Overview of the area

The median value measured for Atlantic Area is 172 items/100 m per survey. It appears to be much higher than the threshold value (TV) of 20 litter items/100 m proposed at the European level by the MSFD expert group TG ML, value estimated to reduce harm from beach litter to a sufficiently precautionary level (van Loon, W. et al., 2020). The important difference between the median value calculated here and the TV proposed at EU level exposes that litter pollution on the Atlantic Area coastline is very abundant and presents a risk for the marine environment and coastal activities.

The plastic category represents the major part of the pollution with 89.7 % of the total count in litter items recorded. Within this category, the sanitary litter items represent 9.1 %, which is not surprising because it includes cotton bud sticks, the third most collected litter type with 7.8 % of the total count over the four years. The four other types of litter item constituting the top 5 ranking of Atlantic Area are plastic/polystyrene pieces (between 2.5 cm and 50 cm), string and cord (diameter less than 1 cm), caps and

lids, and cigarette butts at the first, second, fourth and fifth positions respectively. This clearly illustrates the predominance of PLASTIC items in the surveys of the area.

Table 1 presents the distribution of the litter pollution over the countries of the Atlantic Area.

Table 1. Summary of the abundances in the five countries

Country	**Median abundance** (items/100 m)	**Average abundance** (items/100 m)
Ireland	45	65
UK	226	773
France	178	579
Spain	170	234
Portugal	301	378

Among the five countries, Portugal and United Kingdom have the highest median numbers of litter items per survey with 301 items/100 m and 226 items/100 m respectively. In France and Spain, beach litter is less abundant with 178 items/100 m and 170 items/100 m respectively. Finally, Ireland appears to be the least litter-polluted country with a median number of 45 items/100 m per survey.

1.2. Threshold values

The proposal for the European beach litter TV of 20 items/100 m (van Loon, W. et al., 2020) has been made by taking the 15th percentile of a dataset made of the 1470 surveys collected over Europe and over 2015-2016. The assessment method of this TV is applied to the data involved in the present study. It is equal to 41 items/100 m, 15th percentile of the 922 surveys collected over 2016-2019 in the Atlantic Area. Table 2 presents the effort needed for Atlantic Area and every country subregion to reach the TV and the calculated value of 41 items/100 m.

Table 2. Summary of abundances per country subregion and comparison to TV and calculated value

Country subregion	**N. surveys**	**Median**	**Reduction to TV (20 items/100 m)**	**Reduction to 41 items/100 m**
Atlantic area	**922**	**172**	**88%**	**76%**
Ireland (Celtic Seas)	64	46	71%	10%
UK (Greater North Sea)	20	798	98%	95%
UK (Celtic Seas)	244	283	95%	85%
France (Greater North Sea)	13	100	87%	59%
France (Celtic Seas)	108	187	93%	78%
France (Bay of Biscay and Iberian Coast)	16	1808	99%	98%
Spain (Bay of Biscay and Iberian Coast)	189	166	92%	75%
Portugal (Bay of Biscay and Iberian Coast)	179	356	96%	88%
Portugal (Wider Atlantic)	89	68	81%	40%

It is mentioned in van Loon, W. et al. (2020) that the minimum number of surveys per country subregion recommended in order to assess the TV is 40 surveys. As a consequence, three country subregions are not considered in here since their number of surveys does not reach the recommended value: UK (Greater North Sea), France (Greater North Sea) and France (Bay of Biscay and Iberian Coast).

The Table 2 exposes that none of the country subregions reaches the TVs, whether it is the TV of 20 litter items/100 m proposed to EU or the calculated value of 41 litter items/100 m. Considering the last one (41 items/100 m), only two country subregions have less than 50 % of reduction of the abundance in litter items required to reach it: Ireland (Celtic Seas) and Portugal (Wider Atlantic) with 10 % and 40 %

respectively. Considering the TV, all the country subregions present reduction percentages to reach the 20 litter items/100 m higher than 70 %.

These observations mean that an important effort is necessary to reach the TV in Atlantic Area. However, the level of reduction required in the different country subregions is such that it will require several years and cycles of investigation. Thus, the definition of intermediate values seems necessary to reach milestones instead of being continuously higher than the TV. An example of intermediate values can be determined by a stepwise reduction over a given period of time to reach the TV. A proposal for a first intermediate target to be reached by 2030 can be the 25th percentile of the present dataset, equal to 72 litter items/100 m. Then, a second intermediate value to be reached within the next decade can be the 15th percentile calculated previously and so on to reach the TV proposed at EU level. However, this way of calculation may be too simple as it excludes important criterions such as the beach and country subregion specificities or the measures targeting some groups or types of litter items. The definition of this kind of intermediate values is planned by the TG ML (van Loon, W. et al., 2020) what underlines the importance of assessing litter abundances more precisely than only considering the total count in litter items.

1.3. Single Use Plastic (SUP)

At the Atlantic Area scale, SUP items collected per survey is estimated at 39.0 %, with a median number of 43 items/100 m per survey. This number is important and exposes the predominance of SUP items in the beach litter pollution along the Atlantic Area coastline. Among the five countries, two of them present higher values: Portugal and UK, as it is presented Table 3.

Table 3. Summary of the abundances in SUP items

Country	**Median abundance** (items/100 m)	**Part in the total abundance** (%)
Atlantic Area	**43**	**39.0**
Ireland	17	28.7
UK	79	38.6
France	38	27.2
Spain	41	38.4
Portugal	127	50.1

In Portugal, the part in SUP items is the highest with a median of 127 items/100 m, representing 50.1 % of the total count of the country. It is especially due to the high number of cigarette filters and cotton bud sticks collected over the surveys of the country. Indeed, these specific items are in the top 5 of Portugal (first rank for cigarette butts; fifth rank for cotton bud sticks). Moreover, the number of cigarette butts collected per survey in Portuguese sites is remarkably high, where the median number of items collected over the 100 m of beach reaches 19 items/100 m per survey.

SUP items are also important in the UK considering a median value of 79 items/100 m per survey and a part in total abundance of 38.6 %. It is due to the important number of cotton bud sticks collected over the different surveys which represents 11.8 % of the total amount. It results to a median value of 12 cotton bud sticks/100 m per survey.

In Ireland, the part in SUP items is particularly high (28.7 %) but it contrasts with the small median number of SUP items collected per survey, determined at 17 items/100 m.

The median values in SUP items of France and Spain are similar with 38 items/100 m and 41 items/100 m respectively that is close to the number obtained in Atlantic Area (43 items/100 m). However, the parts in

total abundance are different with 27.2 % for France and 38.4 % for Spain, which indicates that the number of SUP items obtained for Spanish sites are more dispersed than those obtained for French sites.

1.4. Fishery-related litter items (FISH)

The FISH group is the second most important group in terms of part of the total abundance and median abundance, with 18.9 % of the total count and a median of 34 items/100 m. Table 4 presents the abundances and relative parts in the total abundance of the five countries of the Atlantic Area.

Table 4. Summary of the abundances in FISH items

Country	Median abundance (items/100 m)	Part in the total abundance (%)
Atlantic area	**34**	**18.9**
Ireland	19	52.4
UK	39	17.5
France	55	22.4
Spain	35	27.4
Portugal	18	13.6

A contrast can be observed between Portugal and Ireland: the median numbers of FISH items are equivalent with 18 FISH items/100 m for Portugal and 19 FISH items/100 m for Ireland. However, these values represent parts very different in the respective countries. In Portugal, the country with the higher median number of litter items of 301 items/100 m, the FISH items solely represents 13.6 % of the total abundance whereas in Ireland, where the median number of litter items is 45 items/100 m, the part in FISH items represents 52.4 % of the country total abundance. The important part in FISH items in Ireland is especially due to two specific litter types present in the top 5: string and cord (diameter < 1 cm) at the first position and rope (diameter > 1 cm) at the third position.

Portugal and Ireland remain the least abundant in FISH items. France is the country presenting the highest number of FISH items in Atlantic Area with a median value of 55 items/100 m and a part of 31.0 % of the total abundance. Finally, the UK and Spain have similar median numbers of FISH items with 39 items/100 m per survey (17.3 % of total abundance) and 35 items/100 m per survey (20.5 % of total abundance) respectively.

1.5. Plastic bags and bags ends (BAG)

BAG items represent 2.4 % of the total abundance of litter items collected per survey in the Atlantic Area (3 items/100 m per survey).

Table 5. Summary of the abundances in BAG items

Country	Median abundance (items/100 m)	Part in the total abundance (%)
Atlantic Area	**3**	**2.4**
Ireland	2	5.1
UK	6	1.9
France	1	0.8
Spain	3	2.2
Portugal	4	4.5

The spatial distribution shows that Portugal and UK have the highest numbers of plastic bags with median values of 4 plastic bags/100 m (4.5 % of the country total abundance) and 6 plastic bags/100 m (1.9 % of the country total abundance) respectively. The other countries are less impacted with 3 plastic bags/100 m

for Spain (2.2 % of the country total abundance) and 1 plastic bag/100 m for France (0.8 % of the country total abundance). As with the other categories, Ireland has a lower number of plastic bags than the top countries Portugal and the UK. The data available showed a median value of 2 plastic bags/100 m per survey, which makes up the 5.1 % of the Irish total abundance. Interestingly, the BAG in Ireland mainly includes small plastic bags, whose litter type is ranked at the sixth place of the most abundant litter types of the country. This finding may indicate that this country could be proportionally more affected by the plastic bags than the others.

1.6. Plastic fragments

The plastic fragments collected in the surveys represent the last group that deserve attention. Beyond the importance of this group of litter items, it could be interesting to evaluate if the fragments are proportional to the total abundance. Considering the entire Atlantic Area, fragments represent 19.8 % (median value of 20 items/100 m) of the total abundance in litter items collected. This group includes two specific litter types: medium plastic and polystyrene pieces (between 2.5 cm and 50 cm; OSPAR id [46]), and larger plastic and polystyrene pieces (higher than 50 cm; OSPAR id [47]). The majority of fragments collected are medium pieces (about 90 % of the fragments collected over the different sites), and as already discussed these medium pieces are the top item collected in the Atlantic Area. In addition, this litter item is frequently placed in the first positions of beach litter top 5 ranking of the sites. Indeed, the medium-size pieces of plastic or polystyrene occur 55 times (out of 62) in the five first places of the litter type rankings.

These numbers prove that the fragments are of great importance in beach litter pollution. Although the top item in the Atlantic Area, the pieces of plastic and polystyrene (2.5 cm – 50 cm) vary from one beach to another with some beaches these items make up 50 % of the total abundance and other have none recorded. Moreover, the distribution of the parts of fragments in the total abundances (or in the plastic class) shows high dispersion considering the variation coefficient (or the interquartile coefficient), which means that the proportion of fragments is not a constant part of the total abundance.

2. Major OSPAR regions

It is useful to observe the OSPAR regions “Celtic Seas” and “Bay of Biscay and Iberian Coast” because 53 of the 62 sites of the area are divided into these two regions (27 in the “Celtic Seas” OSPAR region and 26 in the “Bay of Biscay and Iberian Coast” OSPAR region). The “Celtic Seas” region includes the British, Irish and the majority of French sites whereas the “Bay of Biscay and Iberian Coast” region includes Spanish and Portuguese sites (without Azores), and one French site which presents the most abundant density in litter items of the country.

2.1. Celtic Seas

The “Celtic Seas” OSPAR region has the highest number of site (27 sites) and surveys (416 surveys). The OSPAR region presents the second abundance in litter items of the Atlantic Area with 137 items/100 m. In “Celtic Seas” OSPAR region, on the one hand the median abundance in SUP items is 35 items/100 m with a part of 38.1 % of the total abundance. Among the specific items of this group, the number of cigarette butts is very low with a null median value and a part of only 0.6 % of the total amount of litter items collected over the four years. Nevertheless, cotton bud sticks are relatively high and determined at 11.5 % of the total abundance of this OSPAR region, with a sanitary category representing 13.3 % of the total abundance of the region. This due to the British sites, and especially Lunderstone Bay (UK045) and Sand Bay (UK020):

median numbers of 721 and 167 cotton bud sticks are collected per survey respectively, which boosts the part of this item in the distribution of the country and the OSPAR region.

On the other hand, the part of FISH items of this region is determined at 22.9 % with a median value of 39 items/100 m per survey. This result is higher than the one observed for the "Bay of Biscay and Iberian Coast" OSPAR region (without significant difference) because the "Celtic Seas" OSPAR region contains French sites, that present the highest median number in FISH items, and Irish sites which have important relative parts in FISH items despite their low median values.

2.2. Bay of Biscay and Iberian Coast

The "Bay of Biscay and Iberian Coast" OSPAR region is the most abundant one with a median total count of 298 litter items/100 m. However, there is no significant difference with the "Celtic Seas" OSPAR region because of a higher dispersion of the median total counts of the beaches of this last OSPAR region. In "Bay of Biscay and Iberian Coast" OSPAR region, the proportion in SUP items is determined at 45.2 % of the total abundance with 127 items/100 m, making it the most abundant OSPAR region in SUP items and presenting a significant difference with the value recorded in "Celtic Seas" OSPAR region. The main reason is attributed to the high number of cigarette butts and cotton bud sticks in various sites of the region. Indeed, cigarette butts make up 13.3 % (second place of the top 5 ranking of the region; median value of 14 items/100 m) and cotton bud sticks 5.8 % (fifth place of the top 5 ranking; median value of 6 items/100 m) of the total amount of items collected over 2016-2019. Moreover, unlike the number of cotton bud sticks of the "Celtic Seas" OSPAR region, the part of these two specific items is not attributed to a specific site which boosts the results. In the "Bay of Biscay and Iberian Coast" OSPAR region, the distributions of cigarette butts and cotton bud sticks are less dispersed than observed in "Celtic Seas" OSPAR region.

The observations made for SUP items contrast with the part of FISH items which is lower than in "Celtic Seas" OSPAR region. Indeed, this part is estimated at 15.5 % of the "Bay of Biscay and Iberian Coast" OSPAR region whereas it is 22.9 % of the total abundance of the "Celtic Seas" OSPAR region. However, no significant difference is observed as the median values recorded in the two regions are comparable: 39 items/100 m and 46 items/100 m for "Celtic Seas" OSPAR region and "Bay of Biscay and Iberian Coast" OSPAR region respectively.

The main observations made on these two OSPAR regions reflect the existence of regional characteristics in the Atlantic Area. It also confirms the importance of assessing litter pollution at different scales and having a more detailed approach of the pollution in order to take into account the regional specificities in the litter diminution measures.

3. Focus on the five countries

3.1. Ireland

This country presents the smallest median abundance of litter items in the Atlantic Area with only 45 items/100 m. The country only includes four sites where none of them really stand out.

There is no significant trend observed about the total abundances of the sites, meaning that, even if the country presents the lowest effort to make in order to reach the TV proposed at EU level (20 items/100 m), the time period 2016-2019 is not sufficient to evaluate how long it can take.

The total plastic litter category represents 94.9 %, and no other categories stand out. Abundances of cigarette filters, cotton bud sticks, balloons or hunting cartridges are under 1.0 % of the total abundance.

However, a median number of 17 SUP items/100 m per survey is collected with a part of at least 28.7 % of the total abundance of the country.

FISH items are abundant in the Irish surveys with a median number of 19 items/100 m per survey and a part of 52.4 % of the total abundance per survey of the country. Two FISH items are ranked in the top 5 of the country: “string and cord (diameter less than 1 cm)” is ranked first with 36.7 % of the total amount of items collected over the four years; and “rope (diameter more than 1 cm)” litter type is ranked fourth with 8.7 % of the total amount of items collected over the four years. In addition, two other FISH items (i.e. “tangled nets and cords” and “fishing lines”) are ranked in the top 10 of the litter collected during the surveys in Ireland.

It is worth mentioning the number of plastic bags collected in the different surveys, as it represents 5.1 % of the country total abundance with a median of 2 items/100 m per survey. This group includes the “small plastic bags” litter type, which is ranked at the sixth position in the top-10 list.

To conclude on Irish litter pollution, it appears that the country is little affected by litter pollution in comparison with the Atlantic Area (median total count of 45 items/100 m versus 172 items/100 m in the entire area). However, an important effort has to be made in reduction of FISH items as it represents more than half of the litter items collected in the country. Combining the different litter groups and items, a total of more than 86 % of the beach litter pollution in Ireland is targeted by measures. However, since there is no significant decrease of the litter abundance of the sites, it is difficult to evaluate how long it can take to reach the TV of 20 litter items/100 m.

3.1. United Kingdom

The UK has the second median abundance of litter items in The Atlantic Area (226 litter items/100 m). Interestingly, three out of the 18 sites in the UK present very important median abundances, higher than 1000 items/100 m. Out of the top three sites, the other 15 sites all have a median total abundance per survey of less than 600 items/100 m per survey. The three sites with high abundances are “Sand Bay” (UK020), “Polhawn” (UK041) and “Lundertsone Bay” (UK045) and reach a median abundance of 1049 items/100 m per survey, 3638 items/100 m per survey and 2982 items/100 m per survey respectively. Thus, these sites have influential role in the statistics of the country, especially the total amounts in litter items collected over the four years.

Among the 18 sites, only the site of “Langland Bay” (UK021) presents a significant evolution of the total count in litter items (decrease) over the four years 2016-2019. Therefore, as it has been noted for Ireland, the assessment of the time it takes to reach the TV of 20 litter items/100 m cannot be determined.

As observed in Atlantic Area, the plastic litter category is the largest, making up 86.3 % of the country total items collected. Among these plastic items, the sanitary wastes make up 13.6 % of the total count. Again, the main contribution coming from “cotton bud sticks” litter type which is the second top item found in the UK (11.8 %), high value in comparison with the other countries of the Atlantic Area. It can be explained by the high abundances in the sites of “Sand Bay” and “Lunderstone Bay” where this litter type is ranked by far at the first places of their top 5 of litter types, with 27.1 % and 28.1 % of the site contributions respectively. In addition, two other sites have this litter type in their top 5 rankings, even if their contributions to the total abundance of the country are not as significant as the mentioned specific sites.

The most common plastic litter type is “plastic/polystyrene pieces more than 2.5 cm and less than 50 cm” (14.6 %). It shows that non-identifiable plastic fragments, representing 17.7 % of the total abundance when including pieces larger than 50 cm, occupy an important place within the beach litter pollution in the UK.

The abundance in SUP items represents 38.6 % of the total abundance with 79 items/100 m. It appears to be due to the important contribution of “cotton bud sticks” litter type. It can also be pointed out that to other SUP litter types are present in the top 5 of the country, namely the “caps/lids” litter type (4th place; 7.8 % of the total count) and the “crisp/sweet packets and lolly sticks” litter type (5th place; 7.2 % of the total count).

The contribution of FISH items is 17.5 % in the UK whereas it is 22.9 % in the “Celtic Seas” OSPAR region. However, the UK has the second highest number of FISH items in the Atlantic Area with 39 items/100 m per survey versus 55 items/100 m per survey in France and 19 items/100 m per survey in Ireland. This type of observation highlights the importance of the duality of the indicators used (median abundance and part of the total abundance): at the Atlantic Area scale, the median abundance in FISH items shows that the UK has an important role to play in term of fishing activities, while at national level, these items are not as present as it can be observed in Ireland or in France.

Finally, the beach litter pollution in the UK is impacted by SUP items and FISH items, combining 56 % of the total abundance. Beyond the high median values of these groups in comparison with other countries such as Ireland, it illustrates that more than 40 % of the total abundance is not targeted by measures. In addition, the importance of non-identifiable plastic fragments in litter pollution shows that the sources of the pollution cannot be assessed, preventing from elaboration of targeted measures.

3.2. France

The median total abundance of the French sites is 178 items/100 m per survey, which makes it third place in Atlantic Area. The median abundances of 8 sites are comprised between 36 items/100 m and 509 items/100 m. Only one site, “La Barre” (FR017), presents an extreme median abundance higher than 1800 items/100 m.

Among the 9 sites of France, 3 sites present significance decreases (“Kerizella”, FR008; “Trielen”, FR012; “La Grandville”, FR019) whereas the site of “Sein” (FR006) has a significant increase of its litter abundance. Although 4 sites in France show significant evolutions, it is not the case for most of the country, like in Ireland or in the UK. It prevents to conclude on the evolution of the beach litter pollution of the country over 2016-2019.

The total plastic category makes up 92.1 % of the total abundance. The top item collected is “plastic/polystyrene pieces (2.5 cm > < 50 cm)”, representing 33.1 % of the total litter items collected. This result is impacted by the site of “La Barre” as the most collected litter type of the site is also “plastic/polystyrene pieces (2.5 cm > < 50 cm)”, which boosts the estimations obtained for France.

The specific litter type “cigarette butts” only represents 2.8 % of the total abundance of the country with a null median abundance per survey. Only two sites are really impacted by this item, “La Barre” included, which represents more than 90 % of the cigarette butt abundance of France. The other seven sites are not affected by this item as their parts of cigarette butts in the total abundance are systematically under 0.2 %. Thus, it indicates that the French sites located in “Celtic Seas” OSPAR region are not impacted by cigarette butts. The same trend is observed for “cotton bud sticks”. Again, it is “La Barre” the only site of the country

in which the total abundance of cotton buds is higher than 1 %. “La Barre” thus provides 88.2 % of the cotton bud sticks collected in the country.

Hence, the SUP items are not as important as in UK or Portugal. The percentage of SUP items in France is 27.2 %, considering a median of 38 items/100 m per survey.

The percentage in FISH items makes up 22.4 % of the total abundance, which is similar to the 22.9 % of the “Celtic Seas” region. It is worth mentioning that 7 out of the 9 French sites belong to this OSPAR region. Once again, the site of “La Barre” (located in “Bay of Biscay and Iberian Coast” OSPAR region) is different and presents less FISH items (5.4 %). This result supports the differences observed concerning these items between the two most important OSPAR regions of the Atlantic Area.

To summarize the beach litter pollution of France, its level is similar to the one observed at Atlantic Area scale. SUP and FISH groups present similar parts in the total abundance, but the median values are different (38 items/100 m for SUP group versus 55 items/100 m for FISH group). It is because of one specific site (“La Barre”) which boosts the number of SUP items collected in the country whereas the number of FISH items is less dispersed. It means that in France, FISH items are slightly more present than SUP items on surveyed beaches. Combining these groups, nearly 50 % of the pollution is targeted by measures. But the litter group which remains the most abundant in the country is the group of non-identifiable plastic fragments, demonstrating once again the importance of research on identifying methods in order to determine their sources and initiate countering measures.

3.1. Spain

The median total abundance in Spain is 170 items/100 m. This value is similar to the French abundance and Atlantic area one.

In Spain, three sites have significant evolutions: “La Vega” (ES005) and “Oyambre” (ES013) have significant decreases whereas “Covas” (ES010) has a significant increase of the amount of litter items. As observed in France, these evolutions are not sufficient to determine the evolution of the beach litter pollution over the time period 2016-2019.

The plastic category makes up 91.7 % of the country abundance, considering a sanitary category of 7.2 % of the country total abundance. The specific litter type “cotton bud sticks” explains the significant number of sanitary litter items in the country total abundance (80.3 % of the litter items of the category). The “cotton bud sticks” litter type in the country abundance is estimated at 5.7 % of the total amount of litter items collected over the four years, fifth place of the top 5 ranking. Although three sites represent 75 % of the country abundance in cotton bud sticks, this litter type is present in the top 5 ranking of 5 out of the 12 Spanish sites, which indicates the significant part this litter item plays in the country beach litter abundance.

In addition, “cigarette butts” are of great importance too. They make up 7.5 % of the total amount of litter items collected over the four years, which exceeds the value observed in Atlantic Area (6.0 %). It is the fourth type of top 5 ranking of the litter types of the country. On close observation of the distribution over the sites of the country, it appears that the numbers recorded in “A Lanzada” (ES001) are the highest with a median value of 21 cigarette butts/100 m per survey (the cigarette filters represent 21.2 % of the site total abundance). However, it is not the only site especially impacted by this litter type as it is ranked in 5 top 5 out of the 12 Spanish sites, and in 10 of the top 10 out of the 12 Spanish sites.

These two specific items commented above contribute to the SUP items share: a median of 41 SUP items/100 m are collected per survey, with a part of 38.4 % of the total abundance of the country.

It is worth to point out that fishery-related items are relatively high (27.4 %) when compared to the results obtained for the involved OSPAR region (15.5 %). This is due to the important level of strings and cords (diameter less than 1 cm) collected, whose group is ranked at the first position of the top 5 of the country, and representing 19.5 % of the total of litter items collected over the four years.

Finally, the median amount of litter items in Spain is similar to the one observed in France, with the exception that there is not one site standing out. In addition, levels of SUP items and FISH items are not so different from those observed in France, but still higher. The main difference comes from the part of plastic fragments which reaches 17.0 % in the country versus 33.4 % in France. But even if the part of non-identifiable plastic fragments is lower than observed in France, it remains an important issue, with a specific litter type ranked at the second place of the top 5 ("plastic/polystyrene pieces 2.5-50 cm", 16.1 % of the total abundance).

3.2. Portugal

Portugal has the first median abundance of litter items in The Atlantic Area with 301 litter items/100 m, considering 19 sites and being 6 in Azores. As observed in the other countries, the plastic litter category is the most abundant with 93.0 % of the country total abundance and a significant part of sanitary items of 7.9 % of the total abundance.

In Portugal, 7 sites out of the 19 present significant evolutions: 4 decreasing ("Monte Velho", PT011; "Aberta-Pedrogão", PT016; "Areia - Corvo - Azores", PT018; "Pedreira - São Miguel - Azores", PT023) and 3 increasing ("Batata", PT005; "Cabedelo", PT007; "Barranha", PT012). Once again, as the 12 other sites do not present significant evolution, it is not possible to status on the evolution of the litter pollution in the country.

High number of cigarette filters was collected over the different sites in this country. Ranked at the first position of the top 5 ranking of the country, this litter type represents 18.7 % of the total number of litter items collected in Portugal over the four years (median value of 19 cigarette filters/100 m per survey). More specifically, 13 of the 19 sites have the "cigarette butts" litter type ranked in the top 5 ranking. Moreover, 3 Portuguese sites present more cigarette butts collected than all the rest of the plastic litter items over their different surveys.

The second important litter category concerns all the sanitary litter items. Once again, this group is predominantly composed of cotton bud sticks, which represent 7.1 % of the country total abundance (and 90.5 % of the litter items of the category). It is important to note that this litter type is ranked at the fifth place of the top 5 of Portugal. In addition, 7 out of the 19 sites include this litter type in their respective top 5.

The high number cigarette butts and cotton bud sticks collected over the different Portuguese sites also contribute to increase the share of the SUP items. These make up 50.1 % of the total abundance per survey of the country, which is the highest amount registered over the five countries. In contrast, the part of FISH items is under the value of Atlantic Area (13.6 % in Portugal versus 18.9 % in Atlantic Area).

About Portuguese sites, it should be noted that the 19 sites can be separated in two different groups when considering the OSPAR regions. Indeed, 6 Azores sites compose the "Wider Atlantic" OSPAR region, which presents different litter distribution than the sites of "Bay of Biscay and Iberian Coast" OSPAR region. In

Azores, the abundance of SUP litter items is clearly under the median value of Portugal, with 18.1 % versus 53.0 % in the whole country. It is due to the small amount of cigarette butts (2.7 % of the region abundance) and cotton bud sticks (0.0 % of the region abundance), which are also under the percentages observed in Iberian coast sites (20.2 % and 7.8 % of the total amounts of cigarette butts and cotton bud sticks respectively). It means that the estimated parts in abundance of these item types in Portugal could have been even more important if the Azores sites have been excluded from the study. In addition, FISH items are lower in the "Wider Atlantic" OSPAR region than in the others with 1 item/100 m and a part of 5.4 % of the total abundance which contrasts with the results obtained for the two principal OSPAR regions (39 items/100 m and 46 items/100 m for "Celtic Seas" and "Bay of Biscay and Iberian Coast" OSPAR regions respectively). However, some unusual litter categories significantly contribute to the total amount in litter items of "Wider Atlantic" sites, such as items made of glass (6.7 %), items made of pottery or ceramics (5.7 %) and items made of metal (3.2 %). These numbers were recorded on the site of "Praia da Maia" in São Miguel island of Azores (PT022), which show high proportions of items from glass and pottery, with 26.4 % and 29.2 % of the total count of the site respectively.

These observations on Portuguese sites and sub-regions reinforce the fact that there are differences in terms of activity from one region to another. Therefore, the measures developed at the Atlantic Area level in order to reduce the beach litter pollution have to be adapted to the specificities of each region.

Conclusion

In the present study, a characterisation of beach litter abundance and composition on the Atlantic Area shoreline have been performed at different geographical scales over the time period 2016-2019 in order to assess its current beach litter pollution status. To do this, a set of statistical indicators has been proposed and calculated at the different scales. These indicators include the median abundances and the parts of litter categories (i.e. the materials of the different litter types), groups of interest (including groups of litter items targeted by measures) and specific litter types (also targeted by measures) in the total count in litter items. It also allows achieving the distribution of the litter abundance and the ranking of the litter types (top 5, top 10).

The study confirms beach litter is abundant in the Atlantic Area with a median total abundance of 172 litter items/100 m over 2016-2019. This value is much higher than the TV of 20 items/100 m proposed at the European level by experts from the MSFD TG ML, indicating marine litter presents a risk for the marine environment and coastal activities.

A decrease of 88 % of the total beach litter pollution is required to reach the proposed TV. This implies that strong and efficient measures to reduce the presence of litter in the marine environment, especially plastics as they represent 89.7 % of beach litter in the Atlantic Area. Similar results are obtained at country subregion level with needed decreases to the EU TV comprised between 71 % and 96 %.

When looking at SUP and FISH groups, which are already targeted by measures (e.g. the EU SUP directives), they represent 39.0 % and 18.9 % of the total count respectively at the Atlantic Area level, confirming these groups are abundant and include problematic items also observed in other EU regions. Among these items, cords, ropes and aquaculture bags/nets - litter types classified as FISH items - are particularly abundant, ranked as the 2nd (9.0 %), 9th (2.2 %) and 10th (2.2 %) places of the Atlantic Area top 10 respectively. Cotton bud sticks (3th; 7.8 %), caps and lids (4th; 7.7 %), cigarette filters (5th; 6.0 %), crisp/sweet packets (6th; 5.5 %)

and drink bottles (8th; 3.9 %) - litter types classified as SUP items - are also abundant and ranked in the top 10.

Though nearly 60 % of the litter items in the Atlantic Area appear to be targeted by measures, 40 % still need reduction actions. These remaining items are mainly constituted of non-identifiable fragments (due to degradation) which represent 19.8 % of the litter pollution observed at Atlantic Area scale. In addition, the litter type "Other plastic/polystyrene items" is ranked at the 7th place of the top 10 and represents 4.7 % of the total count. This observation exposes that the OSPAR list of items still needs to be completed by further items that must be characterised.

When looking at lower scales (OSPAR regions and countries), this study shows geographical differences in beach litter composition which could be related to different activities in the Atlantic Area. As an example, there is a significantly higher SUP part in the "Bay of Biscay and Iberian Coast" OSPAR region than in the "Celtic Seas" OSPAR region, and there are significant differences between the countries considering the FISH part. These results highlight the existence of regional characteristics that confirms the importance of assessing pollution at different scales and the need to take into account these specificities to develop efficient measures.

In a further level of detail, the results expose an important heterogeneity in abundance and composition between the sites and the seasons, which could be explained by several factors (environment, activities, meteorological conditions, etc.). Thus, it is important to have a sufficient spatial and temporal coverage of the area in order to assess the beach litter pollution at subregional level and beyond.

The trends of total count in litter items have been assessed at site level over 2016-2019. Among the 62 sites of Atlantic Area, only 15 sites show significant evolution: 10 significant decreases and 5 significant increases. The remaining sites are divided as follow: 20 sites present a decreasing total count whereas 27 sites present increasing total count. This firstly shows that the evolution of the litter abundance depends on the site observed which brings us back to the importance of having good spatial and temporal coverage of the Atlantic Area shoreline in order to correctly determine the trends at country and region scales. Then, it may also reflect the importance of having long time series because at this point, it is not possible to status on the evolution of beach litter pollution. As an illustration, the MSFD TG ML expert group recommends using 6-year cycles for their different assessments.

The TV calculation method proposed by the TG ML has also been applied to the selected data, based on the 15th percentile of a dataset made of the medians of the 62 sites. The value obtained for Atlantic Area is 41 litter items/100 m, which is higher than the TV of 20 litter items/100 m proposed to EU. It can then be used as an intermediate target that could be used in the future to assess the progress towards Good Environmental Status (GES) in the Atlantic Area as recommended by TG ML. In addition, another intermediate target, easier to reach, can be determined from the 25th percentile of the 2016-2019 site medians. This value is equal to 72 litter items/100 m and it can be targeted by 2030 which implies a reduction of 58 % within 10 years of the current baseline value of 172 litter items/100 m, calculated in the present study. The 15th percentile could then be used as the intermediate target of the next decade with the final aim to reach the TV that will be adopted at the EU level.

The present study also allows identifying existing gaps hindering a precise assessment of beach litter pollution. These gaps are:

- Nearly 20 % of marine litter observed in Atlantic Area are non-identifiable fragments. These large quantities of fragments appear to be problematic as they could be linked to various sources or

activities. It therefore prevents from the implementation of dedicated measures. More researches are needed to improve the knowledge of fragments composition and sources;

- 4.7 % of the total count observed on Atlantic Area coastline is classified as “Other plastic/polystyrene items”, indicating they do not have a proper category to be classified in and cannot be counted individually. Further investigations should be made to improve our knowledge of these items and assess if they require to be targeted by action and as a consequence, if they need to be individually monitored;
- Time series are currently limited hindering the assessment of temporal evolutions and trends. In the present study, analyses are performed on a 4-year period due to a limited availability of data in some geographical regions of the Atlantic Area. In addition, the sites were selected on the condition that they present at least half of the surveys over the 4 years. However, the MSFD TG ML recommends conducting trend analysis over 6-year periods. For this reason, it is essential to ensure that beach litter monitoring is implemented over the long term;
- Spatial coverage is also too limited in some part of the Atlantic Area (e.g. French part of the “Bay of Biscay and Iberian Coast” OSPAR region, which only involves one site). It is recommended to have sufficient number of sites to cover the spatial variation within that area in order to obtain a representative assessment of beach litter pollution;
- Some litter types are known to be abundant in European coastline (e.g. expanded polystyrenes). As a consequence, these groups of items are already targeted by measures (OSPAR Regional Action Plan). However, in some cases, they are not individually monitored in the OSPAR beach litter surveys. It is recommended to adapt the monitoring litter list to existing measures in order to ensure a proper assessment of the efficiency of the measures;
- Sources of beach litter have not been identified in the present study because of a lack of methodology to properly identify these sources. Beyond the identification of sources of the different litter types, this methodology could make possible to estimate transboundary pollution, i.e. to determine the part of litter items that is not originate from the country, region or area where they have been collected. In that sense, the TG ML has planned to develop a suitable model to estimate transboundary pollution in the mid-term future (van Loon, W. et al., 2020). This method could lead to estimate the part of litter items of the present study that come from outside the Atlantic Area.

Overall, this study shows the importance to implement large scale monitoring using standardized methodologies in order to obtain fit-for-purpose data allowing the development of efficient actions to reduce marine litter pollution. Furthermore, these results show that beach litter is abundant in the Atlantic area, as in other areas of Europe, confirming that joint and strong action is required in Europe and with the neighbours in shared marine basins.

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Annex 1: Sites, coordinates and surveys available

Table 6. Surveyed sites, corresponding OSPAR id, coordinates and available surveys in the time period 2016-2019. N is the number of site available from 2016 to 2019 for each surveyed site.

ID	Site name	Coordinates		Surveys between 2016-2019												N
		Latitude	Longitude	2016				2017				2018				2019				
ES001	A Lanzada	42.4515	-8.878583333	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES002	Baldaio	43.29778333	-8.681766667	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES003	Valdevaqueros beach	36.05802778	-5.670666667	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES004	O Rostro	42.96203333	-9.269016667	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES005	La Vega	43.4806	-5.136194444	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES007	Agiti	43.30748056	-2.072938889	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES008	Menacoz	43.39523056	-2.985466667	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES010	Covas	43.67258333	-7.611527778	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES011	Castilla	37.07677778	-6.702	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	15
ES012	Castilnovo	36.25666667	-6.083888889	●	●	●	●	●	●	●	●	●	●	●		●	●		●	14
ES013	Oyambre	43.38961111	-4.328944444	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
ES014	Rodas	42.2197	-8.9017	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
FR006	Sein	48.03361667	-4.857155556	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		15
FR007	Koubou	48.232225	-4.564961111	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		15
FR008	Kerizella	48.49600278	-4.777275	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
FR011	Larmor Plougastel	48.33548056	-4.448097222	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
FR012	Trielen	48.37464444	-4.93625	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
FR017	La Barre	43.52856667	-1.523491667	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
FR019	La Grandville	48.52352222	-2.639791667			●	●	●	●	●	●	●	●	●	●	●	●	●	●	14
FR020	Le Valais	48.52411389	-2.716433333			●	●	●	●	●	●	●	●	●	●	●	●	●	●	14
FR021	Merville Franceville	49.28656389	-0.213863889				●	●	●	●	●	●	●	●	●	●	●	●	●	13
IR001	Long Strand	51.5522925	-8.955066944	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
IR002	Silver Strand	53.64585361	-9.886079167	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
IR003	Carnesore	52.19220333	-6.348813056	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
IR004	Clogherhead - South	53.78874833	-6.2339975	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT001	Praia da Barra	40.64024167	-8.748738889	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		15
PT004	Ilha de Faro	37.00299139	-7.9881	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT005	Batata	37.09725389	-8.667990556	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT007	Cabedelo	41.67363889	-8.826963889	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT008	Osso da Baleia	39.99785556	-8.916519444	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT009	Amoeiras	39.12511111	-9.390355556	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT010	Fonte da Telha	38.56458611	-9.192555556	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT011	Monte Velho	38.08164167	-8.811011111	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT012	Barranha	41.45476056	-8.779015556	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT014	Paredes de Vitória	39.70278611	-9.04995						●	●	●	●	●	●	●	●	●	●	●	11
PT015	Furadouro Sul	40.86547972	-8.678147778									●	●	●	●	●	●	●	●	8
PT016	Aberta-Pedrogão	39.89133333	-8.964722222									●	●	●	●	●	●	●	●	8
PT017	Baleal Leste	39.37341944	-9.330927778								●	●	●	●	●	●	●	●	●	9
PT018	Areia - Corvo - Azores	39.67249	-31.12118	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT020	Almoxarife - Faial - Az.	38.55543	-28.61005	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT021	Praia do Norte - Faial - Az.	38.60994	-28.75625	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
PT022	Praia da Maia - São Miguel – Az.	37.83302	-25.38632	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	15
PT023	Pedreira - São Miguel – Az.	37.71578	-25.464	●	●	●	●	●	●	●		●		●		●	●			11
PT024	São Lourenço - Santa Maria – Az.	36.98847	-25.05488	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	15
UK002	Tan-y-Bwlch Beach	52.40365506	-4.089061404	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	15
UK020	Sand Bay	51.3400358	-2.983243846	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16

ID	Site Name	Coordinates		Surveys between 2016-2019														N
		Latitude	Longitude	2016				2017				2018				2019		
UK021	Langland Bay	51.56596991	-4.010025357	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	15
UK025	Ardglass	54.26327	-5.60887	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK026	Ballyhornan	54.3025	-5.5533	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK028	Ballywalter	54.5426	-5.481	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK032	Kilkeel North	54.062	-5.9689	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK033	Portavogie	54.4772	-5.4399	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK034	Rathlin	55.2909	-6.1942	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK035	Rostrevor	54.0984	-6.2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK036	Runkerry	55.2235	-6.5319	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	15
UK037	Tyrella	54.2491	-5.7536	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK038	White Park Bay	55.2338	-6.3979	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UK039	Tal-y-Foel	53.1489	-4.298		●	●	●		●	●	●	●	●	●	●	●			●	12
UK040	Seatown	50.720301	-2.817478	●	●	●	●	●	●		●	●	●	●						10
UK041	Polhawn	50.325261	-4.220191		●	●	●	●	●	●	●	●	●	●						10
UK045	Lunderston Bay	55.930325	-4.876221	●		●	●	●	●	●	●	●		●	●	●	●	●	●	14
UK048	Formby (Freshfields)	53.566339	-3.098847	●		●	●	●	●	●	●	●	●	●		●	●		●	13

Annex 2: Litter types and assigned categories

Table 7. OSPAR litter types, corresponding id and attributions to OSPAR categories and groups according to OSPAR Guidelines (OSPAR, 2010) and TG ML (Hanke, G. et al., 2019).

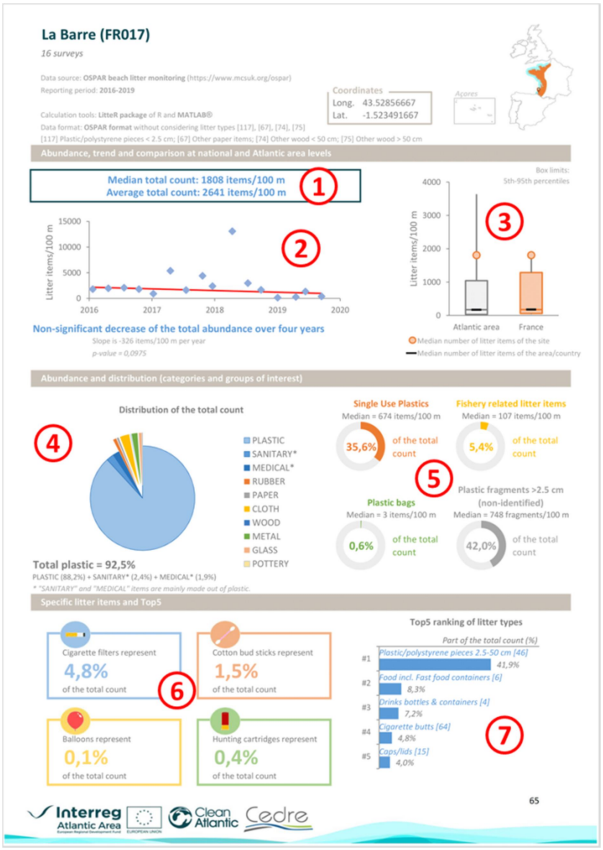
ID OSPAR	Litter type	Total abundance (TA)	Plastic	Rubber	Cloth	Paper	Wood	Metal	Glass	Pottery	Sanitary	Medical	Single Use Plastics (SUP)	Fishery-related items (FISH)	Plastic bags (BAG)	Plastic fragments (FRAG)
1	4/6-pack yokes	●	●										●			
2	Bags (shopping)	●	●										●		●	
3	Small plastic bags, e.g. freezer bags	●	●										●		●	
112	Plastic bag ends	●	●										●		●	
4	Drinks bottles & containers	●	●										●			
5	Cleaner bottles & containers	●	●										●			
6	Food incl. Fast food containers	●	●										●			
7	Cosmetics bottles & containers	●	●										●			
8	Engine oil bottles & containers < 50 cm	●	●													
9	Engine oil bottles & containers > 50 cm	●	●													
10	Jerry cans (square plastic containers with handle)	●	●													
11	Injection gun containers	●	●													
12	Other bottles & containers	●	●										●			
13	Crates	●	●													
14	Car parts	●	●													
15	Caps/lids	●	●										●			
16	Cigarette lighters	●	●													
17	Pens	●	●													
18	Combs/hair brushes	●	●													
19	Crisp/sweet packets and lolly sticks	●	●										●			
20	Toys & party poppers	●	●													
21	Cups	●	●										●			
22	Cutlery/trays/straws	●	●										●			
23	Fertiliser/animal feed bags	●	●													
24	Mesh vegetable bags	●	●													
25	Gloves	●	●													
113	Gloves (industrial/professional rubber gloves)	●	●													
26	Crab/lobster pots	●	●											●		
114	Lobster and cod tags	●	●											●		
27	Octopus pots	●	●											●		
28	Bags/nets from oyster/mussel culture	●	●											●		
29	Oyster trays (round from oyster cultures)	●	●											●		
30	Plastic sheeting from mussel culture (Tahitians)	●	●											●		

ID OSPAR	Litter type	TA	Plastic	Rubber	Cloth	Paper	Wood	Metal	Glass	Pottery	Sanitary	Medical	SUP	FISH	BAG	FRAG
31	Ropes (diameter more than 1 cm)	●	●											●		
32	Strings and cords (diameter less than 1 cm)	●	●											●		
115	Nets and pieces of net < 50 cm	●	●											●		
116	Nets and pieces of net > 50 cm	●	●											●		
33	Tangled nets/cords	●	●											●		
34	Fish boxes	●	●											●		
35	Fishing lines (angling)	●	●											●		
36	Light sticks (tubes with fluid)	●	●											●		
37	Floats/Buoys	●	●											●		
38	Buckets	●	●													
39	Strapping bands	●	●													
40	Industrial packaging, plastic sheeting	●	●													
41	Fibre glass	●	●													
42	Hard hats	●	●													
43	Shotgun cartridges	●	●													
44	Shoes/sandals	●	●													
45	Foam sponges	●	●													
117	Plastic/polystyrene pieces < 2.5 cm	Litter type excluded from the analysis														
46	Plastic/polystyrene pieces 2.5 cm > < 50 cm	●	●													●
47	Plastic/polystyrene pieces > 50 cm	●	●													●
48	Other plastic polystyrene items	●	●													
49	Balloons	●		●									●			
50	Boots	●		●												
52	Tyres and belts	●		●												
53	Other rubber pieces	●		●												
54	Clothing	●			●											
55	Furnishing	●			●											
56	Sacking	●			●											
57	Shoes	●			●											
59	Other textiles	●			●											
60	Bags	●				●										
61	Cardboard	●				●										
118	Carton/Tetrapack Milk	●				●										
62	Carton/Tetrapack (others)	●				●										
63	Cigarette packets	●				●										
64	Cigarette butts	●	●										●			
65	Cups	●				●										
66	Newspapers & magazines	●				●										
67	Other paper	Litter type excluded from the analysis														
68	Corks	●					●									
69	Pallets	●					●									
70	Crates	●					●									
71	Crab/lobster pots	●					●							●		
119	Fish boxes	●					●							●		
72	Ice lolly sticks/chip forks	●					●									
73	Paint brushes	●					●									

ID OSPAR	Litter type	TA	Plastic	Rubber	Cloth	Paper	Wood	Metal	Glass	Pottery	Sanitary	Medical	SUP	FISH	BAG	FRAG
74	Other wood pieces (small)	Litter type excluded from the analysis														
75	Other wood pieces (large)	Litter type excluded from the analysis														
76	Aerosol/Spray cans	●						●								
77	Bottle caps	●						●								
78	Drink cans	●						●								
120	Disposable BBQs	●						●								
79	Electric appliances	●						●								
80	Fishing weights	●						●								
81	Foil wrappers	●						●								
82	Food cans	●						●								
83	Industrial scrap	●						●								
84	Oil drums	●						●								
86	Paint tins	●						●								
87	Lobster/crab pots	●						●								
88	Wire, wire mesh, barbed wire	●						●								
89	Other metal pieces < 50 cm	●						●								
90	Other metal pieces > 50 cm	●						●								
91	Bottles	●							●							
92	Light bulbs/tubes	●							●							
93	Other glass items	●							●							
94	Construction material (e.g. tiles)	●								●						
95	Octopus pots	●								●				●		
96	Other ceramic/pottery items	●								●						
97	Condoms	●									●					
98	Cotton bud sticks	●									●		●			
99	Sanitary towels/panty liners/backing strips	●									●		●			
100	Tampons and tampon applicators	●									●		●			
101	Toilet fresheners	●									●		●			
102	Other sanitary items	●									●					
103	Containers/tubes	●										●				
104	Syringes	●										●				
105	Other medical items (swabs, bandaging, etc.)	●										●				
121	Faeces bagged dog poo	●														

Annex 3: Formula used for the different statistics and indicators

1. Beach scale calculations



① the first box presents the median and average total abundances over the n surveys of the site. The average total abundance at beach scale (TAb)[1] is the mean of the total abundances of the different surveys (TA_i) as expressed in equation (1).

$$TAb = \frac{1}{n}\sum_{i=1}^{n}\sum_{j=1}^{m} x_{ij} = \frac{1}{n}\sum_{i=1}^{n} TA_i \qquad (1)$$

x_{ij} number of items of the litter type j in the survey i carried out on the considered site;
n total number of surveys carried out on the site (e.g. $n = 16$ for the site "A Lanzada");
m total number of litter types.

② the total counts of the n surveys are plotted. The red line represents the general trend over the four years. It is calculated using the Theil-Sen estimator instead of least squares (see LitteR package references, https://CRAN.R-project.org/package=litteR). The corresponding p-value is also presented showing the significance of the trend (Mann-Kendall trend test).

[1] The indice b stands for "beach" and indicates that beach scale is considered.

③ the boxplot represents the dispersion of the median total abundance of the site within the Atlantic Area and the concerned country. In the present example, the median total count of the beach of "La Barre", France, is thus compared to Atlantic Area beaches and French beaches. The following information is presented on each boxplot:

- Maximum site abundance (median value) within the Atlantic Area;
- 95th percentile (i.e. 95 %) of the set of abundances within the Atlantic Area;
- 50th percentile (i.e. 50 % or median) of the set of site abundances within the Atlantic Area;
- 5th percentile (i.e. 5 %) of the set of site abundances within the Atlantic Area;
- Minimum site abundance within the Atlantic Area;

④⑤ the part of the OSPAR classes of litter items ($Classb\%$) in the total abundance represents the part in the total amount of litter items collected over the different surveys. Thus, it is calculated by comparing the sum of the items of the class over the surveys to the sum of the total abundances as in equation (2).

$$Classb\% = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m'} x_{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{m} x_{ij}} \quad (2)$$

x_{ij} number of items of the litter type j in the survey i is carried out on the considered site;
n total number of surveys carried out on the site;
m total number of litter types;
m' number of litter types in the specific class involved, e.g. plastic-made items.

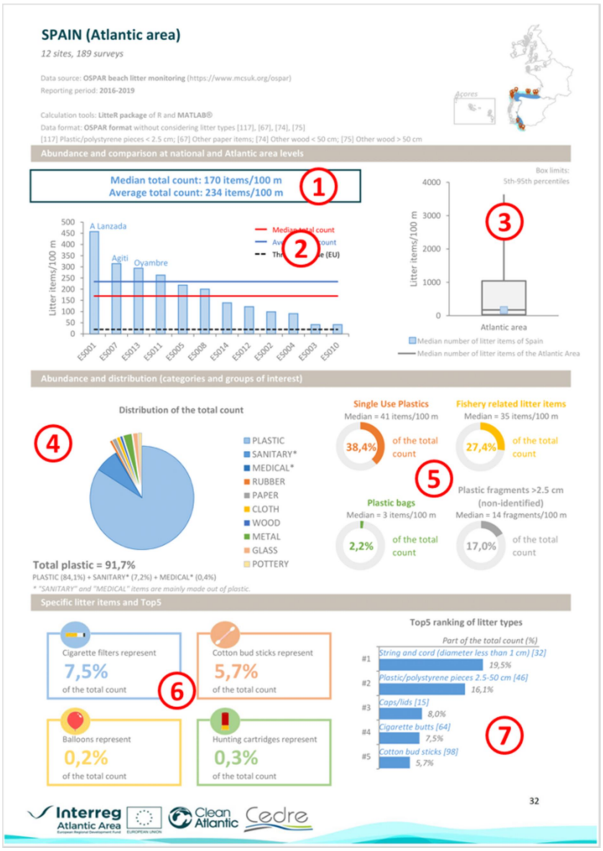
The parts of the specific groups - including SUP items, FISH items, plastic bags and fragments - is calculated in the same way as $Classb\%$, i.e. by comparing the total amount of group items with the total amount of items collected over the four years.

⑥⑦ the scores calculated for the top 5 and expressed percentages of litter types are based on the part of the litter types in the total amount of litter items collected over the covered period (i.e. all the surveys). Thus, the part of the litter types in the top 5 ($Itemb\%$) is determined as in equation (3).

$$Itemb\% = \frac{\sum_{i=1}^{n} x_{i,item}}{\sum_{i=1}^{n}\sum_{j=1}^{m} x_{ij}} \quad (3)$$

x_{ij} number of items of the litter type j in the survey i carried out on the considered site;
n total number of surveys carried out on the site;
m total number of litter types;
$x_{i,item}$ number of items of the litter type $item$ in the survey i.

2. Region scale calculations (country, OSPAR region)



① the median total abundance is calculated as the median of the medians of the different beaches considered in the country/region. The average total abundance at upper scale (TAr)[2] is the mean of the average total abundances of the different beaches (TAb_k) considered in the country/region. It can be described as follow.

$$TAr = \frac{1}{N}\left[\left(\frac{1}{n_1}\sum_{i=1}^{n_1}\sum_{j=1}^{m} x_{ij1}\right)_{Site1} + \left(\frac{1}{n_2}\sum_{i=1}^{n_2}\sum_{j=1}^{m} x_{ij}\right)_{Site2} + \cdots + \left(\frac{1}{n_N}\sum_{i=1}^{n_N}\sum_{j=1}^{m} x_{ijN}\right)_{SiteN}\right] = \frac{1}{N}\sum_{k=1}^{N} TAb_k \quad (4)$$

x_{ijk} number of items of the litter type j in the survey i carried out on the site k (with $k = 1$ to N, N the total number of sites in the corresponding country/region);

n_k total number of surveys carried out on the site k;

m total number of litter types.

Note that the number of surveys depends on the involved site whereas the number of litter types is constant.

② the median counts obtained for the n sites of the country/region are presented and compared to the average and median abundances calculated. In addition, the TV of 20 items/100 m, adopted by EU (van Loon, W. et al., 2020), is reported.

[2] The indice b stands for "region".

③ the boxplot present the distribution of the median counts of the n sites like in beach scale sheets, except that the square plotted represent the median abundance of the area/country. In the present example, the median count of Spain in represented by the blue square in the boxplot.

④⑤ the parts of the OSPAR classes of litter items ($Classr\%$) in the total abundance are calculated by summing all the litter items collected per class over all the surveys of all of the sites and comparing it to the sum of the total abundances. The calculation, exposed hereinafter, is similar to the one presented at beach scale.

$$Classr\% = \frac{\sum_{k=1}^{N}\sum_{i=1}^{n_k}\sum_{j=1}^{m'} x_{ijk}}{\sum_{k=1}^{N}\sum_{i=1}^{n_k}\sum_{j=1}^{m} x_{ijk}} \quad (5)$$

x_{ijk} number of items of the litter type j in the survey i carried out on the site k;
n_k total number of surveys carried out on the site k;
m total number of litter types;
m' number of litter types in the specific class involved, e.g. plastic-made items;
N total number of sites in the upper scale.

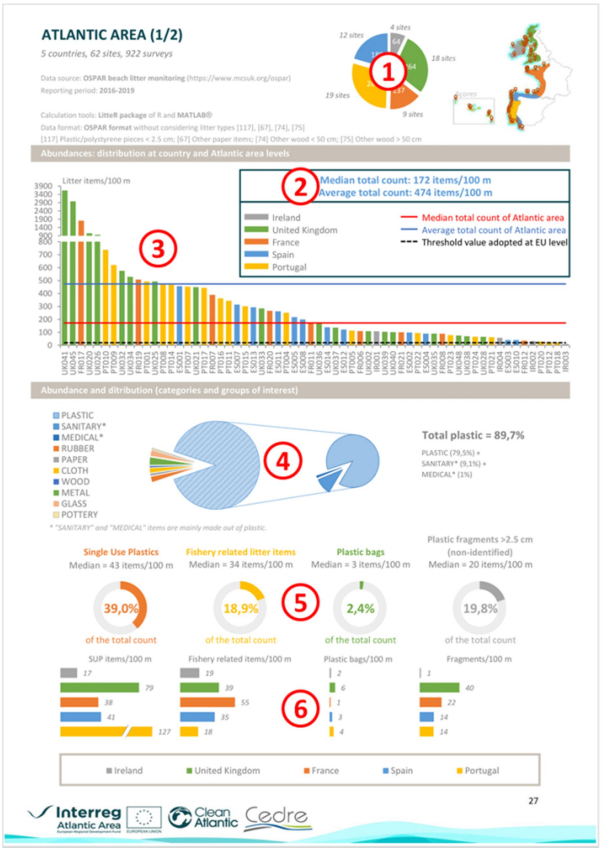
The parts of the specific groups - including SUP items, FISH items, plastic bags and fragments - is calculated in the same way as $Classr\%$, i.e. by comparing the total amount of group items with the total amount of items collected over the four years.

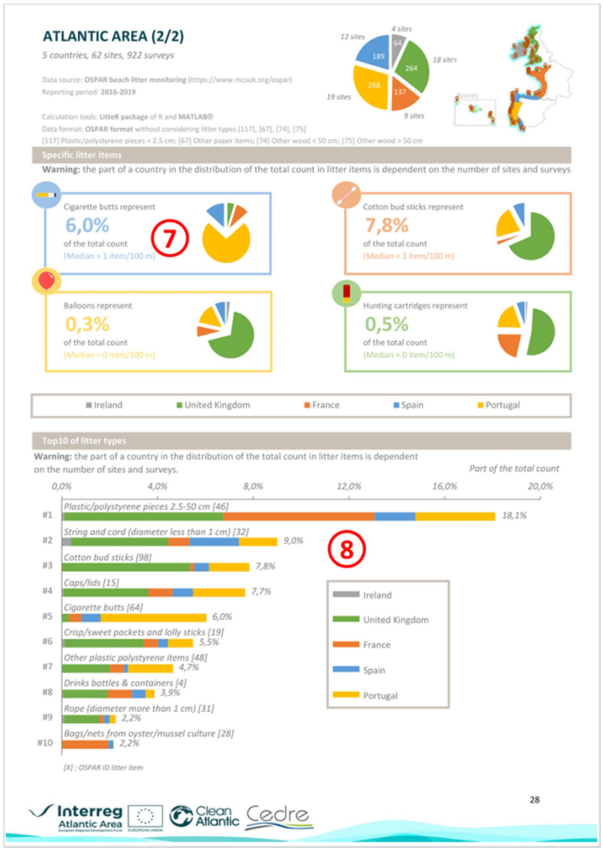
⑥⑦ the scores calculated for the top 5 and expressed percentages of litter types are based on the part of the litter types in the total amount of litter items collected over the covered period (i.e. all the surveys). Thus, the part of the litter types in the top 5 ($Itemr\%$) is determined as in equation (3).

$$Itemr\% = \frac{\sum_{k=1}^{N}\sum_{i=1}^{n_k} x_{ik,item}}{\sum_{k=1}^{N}\sum_{i=1}^{n_k}\sum_{j=1}^{m} x_{ijk}} \quad (6)$$

x_{ijk} number of items of the litter type j in the survey i carried out on the site k;
n_k total number of surveys carried out on the sites (note: n_k is not constant here and depends of the k^{th} site);
m total number of litter types;
$x_{ik,item}$ number of items of the litter type $item$ in the survey i carried out on the beach k.

3. Atlantic Area scale calculations





① the chart represents the number of surveys available for each country (indicated in white). In addition, the corresponding number of site is indicated outside the chart.

② the median total count and the average total count are calculated in the same way as for region/country scale: the median total count is the median of the median total counts of the 62 sites involved whereas the average total abundance is obtained as the mean of the average total counts of the 62 sites.

③ the median counts obtained for the 62 sites of the Atlantic Area are presented and colored according to their respective country. Median total count, average total count and European TVs are represented in the same way as for region/country sheets.

④ the parts of the OSPAR classes of litter items are calculated in the same way as presented equation (5), considering N = 62 sites. The hatched blue part of the pie represents the total plastic part which is detailed in the right side with PLASTIC, SANITARY and MEDICAL categories.

⑤ the parts of the specific groups - SUP, FISH, BAGS and plastic fragments - are also calculated in the same way as for countries and OSPAR regions. The medians obtained result from the median of the median total counts of the 62 sites. The relative percentages representing the parts of each group in the total count of Atlantic Area are calculated according to equation (5) with the total number of site N = 62.

⑥ the medians number of items per survey obtained for every country is presented. These indicators are obtained through the median of the medians of each site involved in the country. These values are presented in point ⑤ of the country and OSPAR region sheets.

⑦ the parts of the specific items are calculated following equation (6) with the total number of site N = 62. In addition, the distribution of the items per country is presented. It is again pointed out that this distribution is dependent on the number of survey of each country.

⑧ the top 10 of litter items is calculated in the same way as the top 5 obtained at country and OSPAR region scale. Moreover, the distribution per country of the parts of each item of the top 10 is shown.

Annex 4: Summary of the statistical indicators estimated for the different geographical scales

Table 8. Summary of the statistical indicators estimated for every geographical scale and important OSPAR category, groups and ítems. The different two indicators represented are the median abundance (in litter ítems/100 m) and the part in the total count (in %).

Area Country OSPAR region Site	n sites	n surveys	Total count		Total Plastic*		SUP		FISH		BAGS		Plastic fragments		Cigarette filters		Cotton bud sticks		Balloons		Hunting cartridges	
Atlantic Area	62	922	172	100,0%	163	79,5%	43	39,0%	34	18,9%	3	2,4%	20	19,8%	1	6,0%	1	7,8%	0	0,3%	0	0,5%
Ireland	4	64	45	100,0%	41	93,8%	17	28,7%	19	52,4%	2	5,1%	1	9,0%	0	0,6%	0	0,3%	0	0,7%	0	0,5%
United Kingdom	18	264	226	100,0%	168	71,3%	79	38,6%	39	17,5%	6	1,9%	40	17,7%	0	0,6%	3	11,8%	1	0,5%	1	0,6%
France	9	137	178	100,0%	166	89,5%	38	27,2%	55	22,4%	1	0,8%	22	33,4%	0	2,8%	0	0,9%	0	0,1%	1	0,6%
Spain	12	189	170	100,0%	160	84,1%	41	38,4%	35	27,4%	3	2,2%	14	17,0%	3	7,5%	1	5,7%	0	0,2%	0	0,3%
Portugal	19	268	301	100,0%	268	84,7%	127	50,1%	18	13,6%	4	4,5%	14	14,5%	15	18,7%	8	7,1%	0	0,2%	0	0,4%
Gretaer North Sea	3	33	102	100,0%	91	83,6%	38	20,8%	26	18,1%	2	1,9%	39	33,1%	1	0,4%	0	1,2%	1	0,3%	2	0,4%
Celtic Seas	27	416	137	100,0%	115	73,0%	35	38,1%	39	22,9%	3	1,8%	22	15,4%	0	0,6%	0	11,5%	0	0,5%	1	0,7%
Bay of Biscay and Iberian Coast	26	384	298	100,0%	269	85,6%	127	45,2%	46	15,5%	4	3,1%	18	20,7%	14	13,3%	9	5,8%	0	0,2%	0	0,4%
Wider Atlantic	6	89	64	100,0%	47	80,4%	6	18,1%	1	5,4%	0	1,2%	2	34,9%	0	2,7%	0	0,0%	0	0,3%	0	1,1%
Long Strand (IR001)	1	16	108	100,0%	108	97,5%	32	23,7%	70	57,7%	2	3,7%	10	12,7%	0	0,0%	0	0,0%	0	0,3%	1	0,9%
Silver Strand (IR002)	1	16	33	100,0%	32	98,9%	4	15,1%	20	68,2%	0	2,0%	0	6,9%	0	0,3%	0	0,0%	0	0,0%	0	0,5%
Carnesore (IR003)	1	16	10	100,0%	10	96,1%	5	28,1%	5	57,0%	1	6,0%	0	4,2%	0	0,8%	0	0,0%	0	0,8%	0	0,0%
Clogherhead - South (IR004)	1	16	58	100,0%	51	82,8%	29	46,5%	19	31,3%	5	9,3%	3	5,1%	0	1,7%	0	1,0%	1	1,9%	0	0,0%

Tan-y-Bwlch Beach (UK002)	1	15	109	100,0%	96	88,3%	44	37,6%	19	16,9%	4	5,5%	27	21,3%	0	0,2%	0	0,4%	0	1,5%	1	1,3%
Sand Bay (UK020)	1	16	1049	100,0%	921	65,0%	492	59,2%	68	5,3%	22	1,5%	248	21,8%	15	1,3%	167	27,1%	8	0,8%	3	0,3%
Langland Bay (UK021)	1	15	450	100,0%	344	71,5%	167	34,7%	39	13,4%	8	1,7%	96	21,4%	10	3,2%	15	3,3%	2	0,6%	1	0,5%
Ardglass (UK025)	1	16	493	100,0%	288	59,2%	103	20,8%	105	22,5%	15	2,8%	55	9,3%	0	0,1%	1	0,3%	2	0,5%	1	0,2%
Ballyhornan (UK026)	1	16	963	100,0%	895	89,5%	427	40,6%	171	23,1%	11	1,6%	200	18,4%	0	0,0%	7	1,8%	2	0,4%	33	2,8%
Ballywalter (UK028)	1	16	65	100,0%	58	81,7%	13	29,5%	12	25,7%	3	7,7%	9	19,8%	0	0,4%	0	2,3%	1	1,7%	0	0,3%
Kilkeel North (UK032)	1	16	576	100,0%	383	72,3%	130	27,7%	79	16,2%	4	1,0%	71	15,6%	0	0,1%	0	0,0%	0	0,1%	3	0,5%
Portavogie (UK033)	1	16	285	100,0%	177	64,5%	91	31,8%	39	13,1%	10	4,6%	33	12,1%	0	0,4%	3	1,5%	1	0,4%	1	0,3%
Rathlin (UK034)	1	16	529	100,0%	523	95,0%	117	26,2%	279	56,6%	18	3,0%	41	8,3%	1	0,7%	6	2,5%	2	0,5%	2	0,8%
Rostrevor (UK035)	1	16	90	100,0%	72	79,4%	35	33,3%	6	20,2%	3	2,5%	21	17,9%	0	0,0%	1	1,1%	0	0,4%	0	0,2%
Runkerry (UK036)	1	15	167	100,0%	159	88,3%	67	37,9%	10	5,2%	3	1,0%	76	42,8%	0	0,1%	4	7,7%	0	0,3%	7	4,6%
Tyrella (UK037)	1	16	137	100,0%	115	81,7%	29	25,8%	66	40,1%	7	5,1%	14	9,5%	0	0,4%	1	1,6%	1	1,0%	0	0,7%
White Park Bay (UK038)	1	16	70	100,0%	66	83,3%	28	38,1%	14	26,5%	2	1,8%	18	21,8%	2	2,2%	5	10,6%	0	0,5%	2	2,8%
Tal-y-Foel (UK039)	1	12	104	100,0%	67	68,3%	31	35,5%	23	20,6%	4	3,0%	9	10,0%	0	0,1%	6	4,2%	1	1,4%	0	0,2%
Seatown (UK040)	1	10	102	100,0%	85	88,8%	11	10,5%	13	26,8%	0	1,2%	39	47,1%	0	0,0%	0	0,0%	0	0,0%	0	0,2%
Polhawn (UK041)	1	10	3638	100,0%	3091	83,3%	781	20,5%	663	17,7%	22	1,9%	1190	33,0%	1	0,0%	24	1,2%	13	0,3%	14	0,3%
Lunderston Bay (UK045)	1	14	2983	100,0%	2805	53,3%	1561	53,6%	424	12,4%	47	1,2%	225	6,0%	12	0,7%	721	28,1%	15	0,5%	4	0,1%
Formby (Freshfields) (UK048)	1	13	75	100,0%	40	61,8%	23	43,1%	2	4,3%	1	2,6%	3	13,9%	1	2,7%	0	1,9%	0	1,2%	0	0,1%
Sein (FR006)	1	15	110	100,0%	101	91,2%	24	20,6%	30	42,8%	0	0,8%	19	18,9%	0	0,1%	0	0,1%	0	0,1%	1	0,7%
Koubou (FR007)	1	15	389	100,0%	361	94,4%	85	22,0%	103	27,0%	1	0,5%	170	39,2%	0	0,0%	0	0,1%	0	0,0%	3	1,0%
Kerizella (FR008)	1	16	90	100,0%	60	90,0%	9	20,3%	8	21,6%	0	0,6%	26	37,2%	0	0,0%	0	0,7%	0	0,1%	1	1,9%

Larmor Plougastel (FR011)	1	16	178	100,0%	166	94,3%	64	35,2%	55	30,5%	0	3,5%	22	13,9%	0	0,1%	0	0,2%	0	0,2%	1	1,8%
Trielen (FR012)	1	16	36	100,0%	34	92,4%	14	30,4%	15	20,4%	0	0,2%	7	27,0%	0	0,0%	0	0,6%	0	0,1%	0	2,0%
La Barre (FR017)	1	16	1808	100,0%	1664	88,2%	674	35,6%	107	5,4%	3	0,6%	748	42,0%	34	4,8%	30	1,5%	2	0,1%	10	0,4%
La Grandville (FR019)	1	14	509	100,0%	488	95,9%	22	9,3%	278	66,8%	2	0,6%	31	10,9%	1	0,1%	0	0,1%	1	0,1%	2	0,5%
Le Valais (FR020)	1	14	266	100,0%	211	82,6%	42	7,6%	121	46,2%	5	0,8%	22	26,8%	0	0,2%	0	0,1%	0	0,0%	0	0,1%
Merville Franceville (FR021)	1	13	100	100,0%	91	86,8%	38	32,8%	26	21,0%	2	1,8%	11	25,4%	13	7,3%	0	0,6%	1	0,8%	2	1,4%
A Lanzada (ES001)	1	16	458	100,0%	450	88,8%	149	40,8%	177	37,2%	1	0,8%	46	14,8%	67	21,2%	18	6,5%	0	0,1%	0	0,5%
Baldaio (ES002)	1	16	99	100,0%	97	86,6%	31	32,6%	53	44,0%	2	2,2%	8	9,8%	3	3,0%	10	9,0%	0	0,1%	0	0,3%
Valdevaqueros beach (ES003)	1	16	42	100,0%	28	67,7%	13	31,9%	8	14,0%	2	3,6%	6	14,5%	0	3,3%	0	1,4%	0	0,8%	0	0,0%
O Rostro (ES004)	1	16	91	100,0%	83	88,3%	36	42,4%	23	19,5%	3	1,8%	17	26,8%	1	2,1%	1	8,9%	0	0,0%	1	1,0%
La Vega (ES005)	1	16	219	100,0%	211	92,7%	77	33,8%	50	23,3%	3	1,8%	72	33,2%	5	6,9%	1	1,5%	0	0,1%	1	0,4%
Agiti (ES007)	1	16	315	100,0%	269	82,2%	127	42,3%	20	7,8%	2	0,8%	36	14,1%	0	0,2%	0	0,0%	0	0,1%	0	0,1%
Menacoz (ES008)	1	16	200	100,0%	188	86,1%	36	26,1%	12	15,3%	2	1,1%	57	41,6%	1	2,2%	1	1,1%	0	0,3%	0	0,4%
Covas (ES010)	1	16	42	100,0%	34	77,4%	17	47,6%	6	17,6%	5	14,5%	1	5,3%	4	15,7%	0	0,4%	0	0,3%	0	0,0%
Castilla (ES011)	1	15	263	100,0%	236	87,4%	103	41,2%	85	34,3%	12	3,7%	3	4,7%	0	0,2%	2	1,2%	0	0,1%	1	0,3%
Castilnovo (ES012)	1	14	122	100,0%	98	68,7%	40	34,8%	34	28,7%	4	8,7%	7	5,4%	3	3,3%	1	0,8%	1	1,4%	0	0,1%
Oyambre (ES013)	1	16	294	100,0%	280	68,5%	183	60,1%	44	18,0%	6	3,7%	20	7,0%	45	13,0%	53	19,9%	0	0,0%	0	0,2%
Rodas (ES014)	1	16	139	100,0%	133	88,5%	42	26,0%	36	42,3%	1	0,6%	12	16,4%	12	5,5%	7	6,1%	0	0,4%	0	0,1%
Praia da Barra (PT001)	1	15	493	100,0%	439	86,0%	346	76,9%	13	6,0%	19	4,9%	0	2,3%	225	56,0%	8	3,3%	0	0,1%	0	0,6%
Ilha de Faro (PT004)	1	16	251	100,0%	211	84,9%	127	65,8%	18	8,5%	1	2,8%	10	4,8%	100	51,1%	1	0,7%	0	0,0%	0	0,0%
Batata (PT005)	1	16	114	100,0%	93	84,2%	84	77,1%	6	4,0%	4	3,2%	3	2,5%	57	60,9%	1	0,9%	0	0,1%	0	0,0%

Cabedelo (PT007)	1	16	453	100,0%	436	87,0%	195	35,1%	50	21,4%	11	2,7%	59	11,1%	17	9,1%	20	7,2%	0	0,2%	1	0,3%
Osso da Baleia (PT008)	1	16	474	100,0%	431	87,6%	188	40,4%	48	16,1%	33	7,8%	105	25,1%	15	7,5%	15	4,8%	0	0,3%	2	0,6%
Amoeiras (PT009)	1	16	620	100,0%	581	89,8%	199	34,1%	91	15,7%	32	8,1%	48	10,1%	22	3,9%	19	5,4%	1	0,2%	0	0,1%
Fonte da Telha (PT010)	1	16	738	100,0%	701	80,6%	473	62,4%	66	7,2%	23	3,1%	59	16,8%	218	29,2%	105	14,1%	2	0,2%	1	0,2%
Monte Velho (PT011)	1	16	344	100,0%	268	77,8%	151	51,1%	66	20,4%	16	5,7%	18	7,0%	64	24,1%	14	5,3%	0	0,2%	0	0,2%
Barranha (PT012)	1	16	25	100,0%	21	71,7%	18	62,9%	2	15,5%	0	6,2%	0	0,0%	0	3,6%	0	9,3%	0	0,0%	0	0,0%
Paredes de Vitória (PT014)	1	11	468	100,0%	465	86,5%	301	56,3%	92	18,0%	43	4,9%	82	17,3%	19	5,0%	40	11,1%	1	0,2%	5	1,0%
Furadouro Sul (PT015)	1	8	301	100,0%	282	81,6%	187	74,3%	35	9,7%	4	3,7%	8	6,7%	12	11,4%	36	13,3%	0	0,3%	0	0,6%
Aberta-Pedrogão (PT016)	1	8	363	100,0%	352	87,1%	103	44,3%	67	19,7%	18	6,2%	18	15,9%	6	4,3%	15	9,2%	1	0,2%	1	0,5%
Baleal Leste (PT017)	1	9	444	100,0%	429	89,3%	214	47,0%	145	25,2%	14	4,8%	33	11,9%	55	9,6%	20	6,5%	2	0,3%	1	0,4%
Areia - Corvo - Azores (PT018)	1	16	20	100,0%	15	89,4%	7	31,9%	1	8,6%	0	0,4%	0	39,1%	0	0,9%	0	0,0%	0	1,7%	0	0,7%
Almoxarife - Faial - Azores (PT020)	1	16	29	100,0%	25	91,2%	8	27,2%	1	4,1%	0	1,6%	3	49,8%	5	15,8%	0	0,0%	0	0,0%	0	0,5%
Praia do Norte - Faial - Azores (PT021)	1	16	63	100,0%	62	96,7%	13	26,2%	5	7,6%	2	1,7%	31	49,8%	0	0,5%	0	0,0%	0	0,0%	2	1,7%
Praia da Maia - São Miguel - Azores (PT022)	1	15	95	100,0%	33	35,0%	0	0,8%	0	0,3%	0	0,2%	0	10,7%	0	0,0%	0	0,0%	0	0,0%	0	0,0%
Pedreira - São Miguel - Azores (PT023)	1	11	78	100,0%	62	83,3%	1	10,5%	1	4,1%	0	3,6%	0	18,3%	0	0,6%	0	0,0%	0	0,0%	0	1,3%
São Lourenço - Santa Maria - Azores (PT024)	1	15	66	100,0%	60	83,9%	4	8,4%	3	5,6%	0	0,3%	14	35,6%	0	4,2%	0	0,0%	0	0,0%	1	2,0%

*The “Total Plastic” category presented here combines PLASTIC, SANITARY and MEDICAL items as these two last groups are mainly made out of plastic.

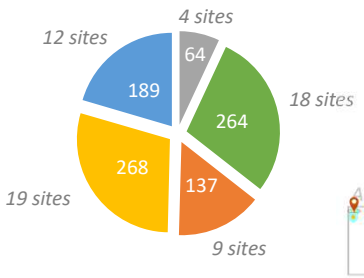
Annex 5: Statistical indicators estimated for specific sites, countries and OSPAR regions of Atlantic Area

ATLANTIC AREA (1/2)

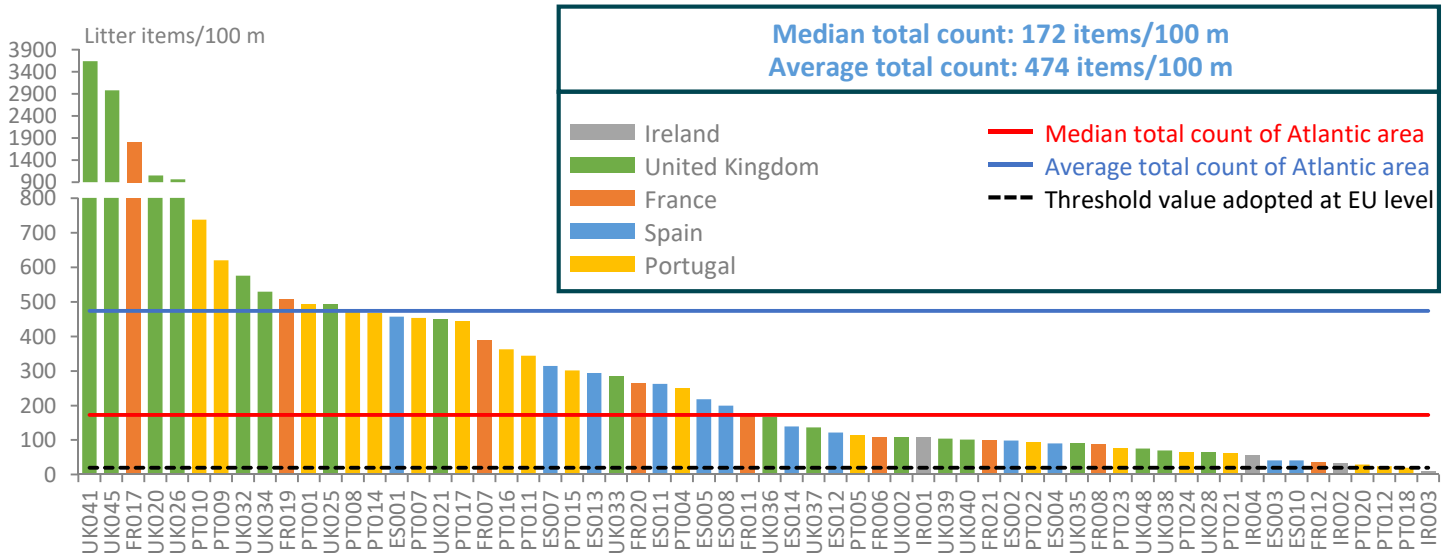
5 countries, 62 sites, 922 surveys

Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

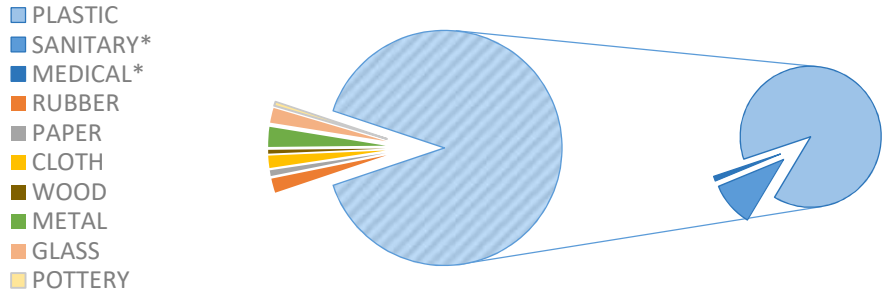
Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm



Abundances: distribution at country and Atlantic area levels



Abundance and ditribution (categories and groups of interest)



Total plastic = 89,7%

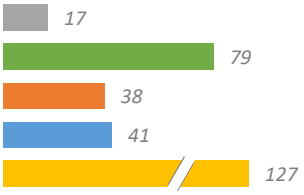
PLASTIC (79,5%) +
SANITARY* (9,1%) +
MEDICAL* (1%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

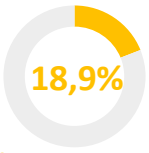
Single Use Plastics
Median = 43 items/100 m

of the total count

SUP items/100 m

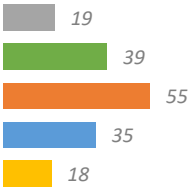


Fishery related litter items
Median = 34 items/100 m

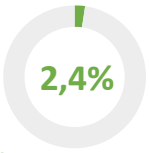


of the total count

Fishery related items/100 m



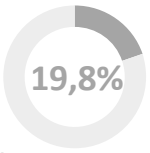
Plastic bags
Median = 3 items/100 m



of the total count

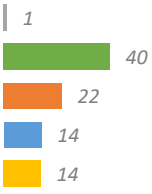
Plastic bags/100 m

Plastic fragments >2.5 cm (non-identified)
Median = 20 items/100 m



of the total count

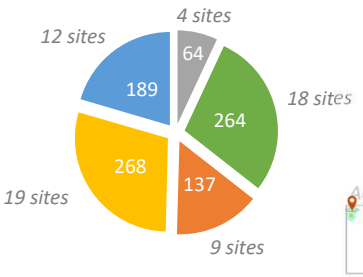
Fragments/100 m



Ireland United Kingdom France Spain Portugal

ATLANTIC AREA (2/2)

5 countries, 62 sites, 922 surveys



Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Specific litter items

Warning: the part of a country in the distribution of the total count in litter items is dependent on the number of sites and surveys.

Cigarette butts represent
6,0%
of the total count
(Median = 1 item/100 m)

Cotton bud sticks represent
7,8%
of the total count
(Median = 1 item/100 m)

Balloons represent
0,3%
of the total count
(Median = 0 item/100 m)

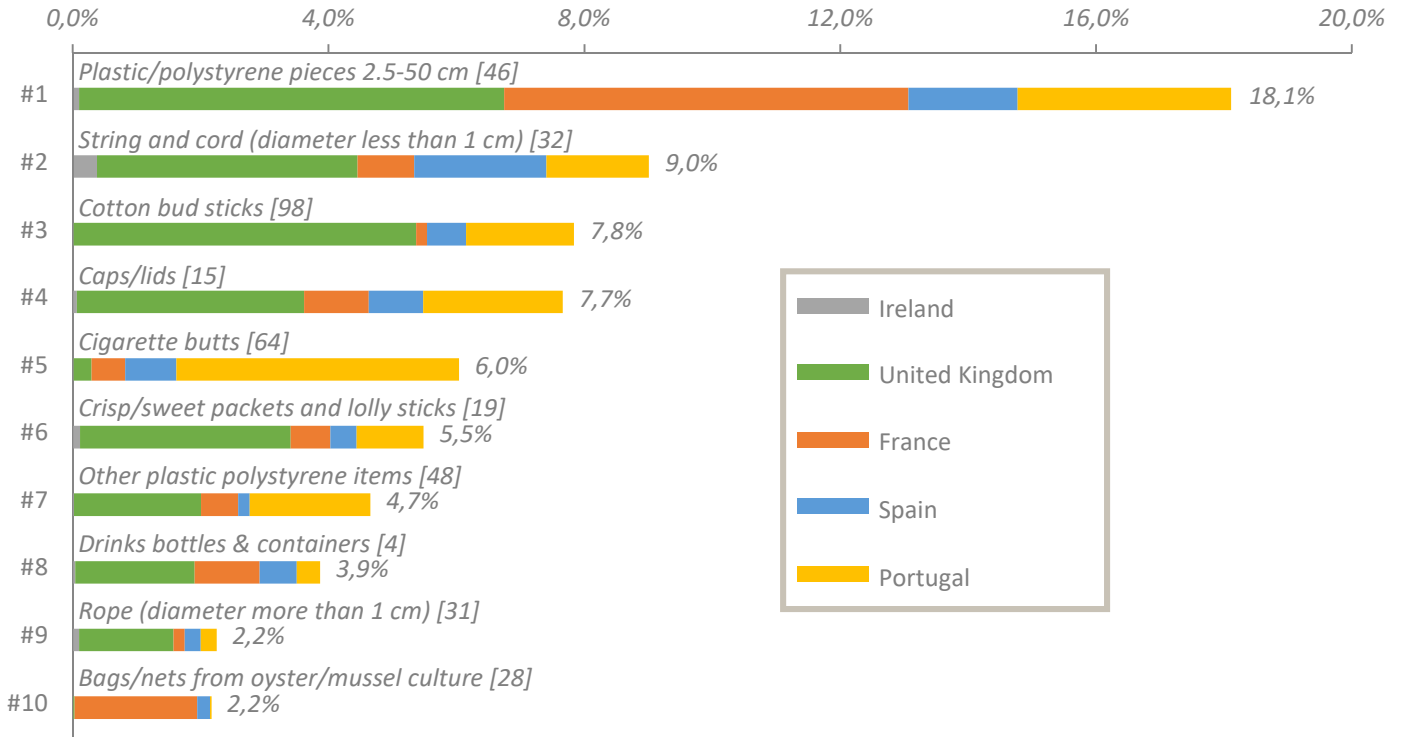
Hunting cartridges represent
0,5%
of the total count
(Median = 0 item/100 m)

Ireland | United Kingdom | France | Spain | Portugal

Top10 of litter types

Warning: the part of a country in the distribution of the total count in litter items is dependent on the number of sites and surveys.

Part of the total count



[X] : OSPAR ID litter item

IRELAND (Atlantic area)

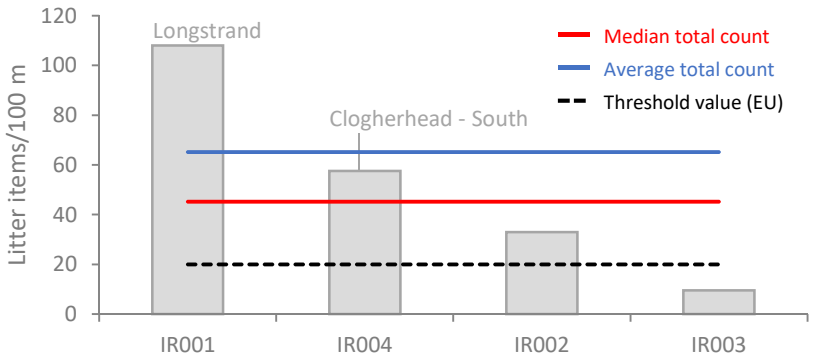
4 sites, 64 surveys

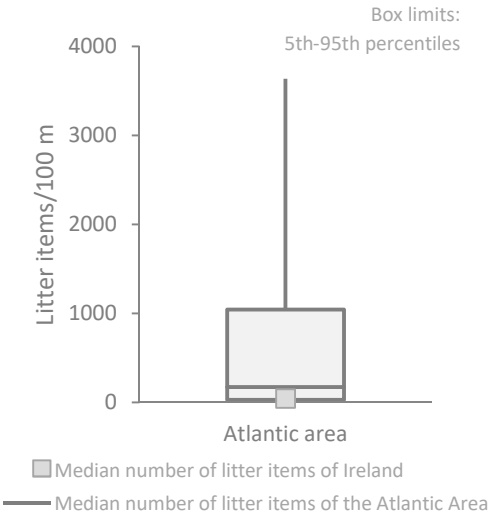
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

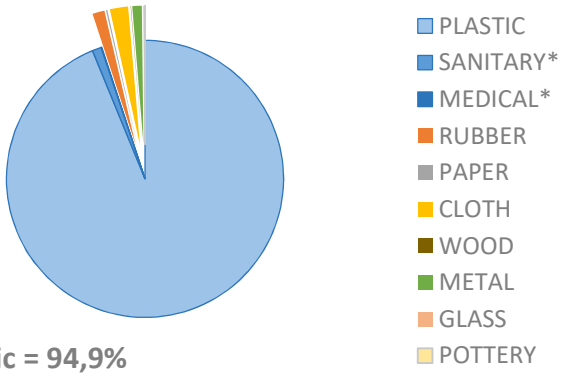
Median total count: 45 items/100 m
Average total count: 65 items/100 m





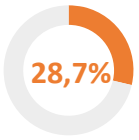
Abundance and distribution (categories and groups of interest)

Distribution of the total count



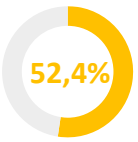
Total plastic = 94,9%
PLASTIC (93,8%) + SANITARY* (1,1%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 17 items/100 m



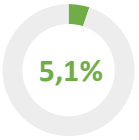
of the total count

Fishery related litter items
Median = 19 items/100 m



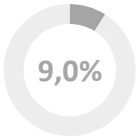
of the total count

Plastic bags
Median = 2 items/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 1 fragment/100 m



of the total count

Specific litter items and Top5

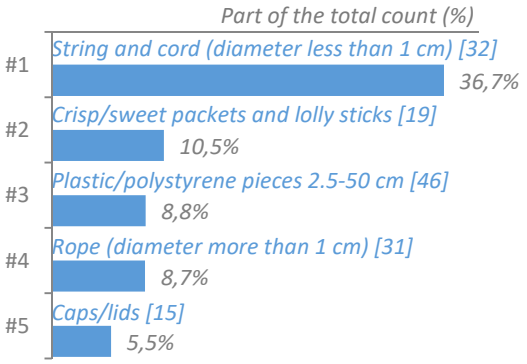
Cigarette filters represent
0,6%
of the total count

Cotton bud sticks represent
0,3%
of the total count

Balloons represent
0,7%
of the total count

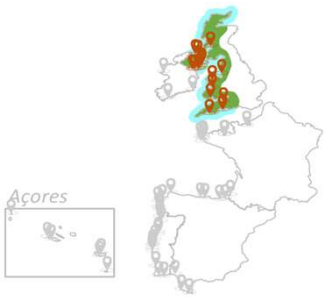
Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



UNITED KINGDOM (Atlantic area)

18 sites, 264 surveys

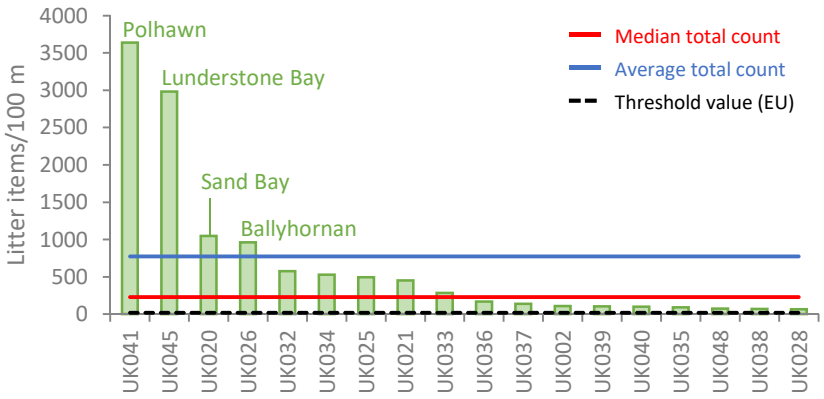


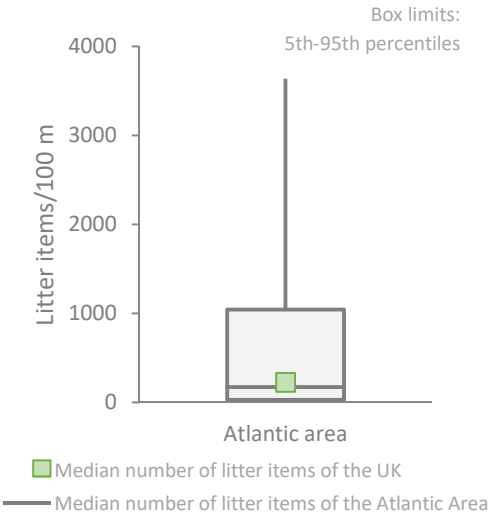
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

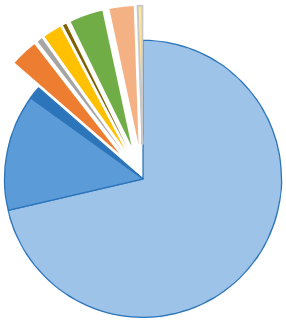
Median total count: 226 items/100 m
Average total count: 773 items/100 m





Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 86,3%
PLASTIC (71,3%) + SANITARY* (13,6%) + MEDICAL* (1,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 79 items/100 m
38,6% of the total count

Fishery related litter items
Median = 39 items/100 m
17,5% of the total count

Plastic bags
Median = 6 items/100 m
1,9% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 40 fragments/100 m
17,7% of the total count

Specific litter items and Top5

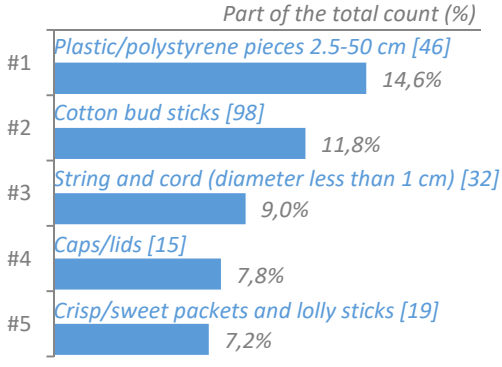
Cigarette filters represent
0,6%
of the total count

Cotton bud sticks represent
11,8%
of the total count

Balloons represent
0,5%
of the total count

Hunting cartridges represent
0,6%
of the total count

Top5 ranking of litter types



FRANCE (Atlantic area)

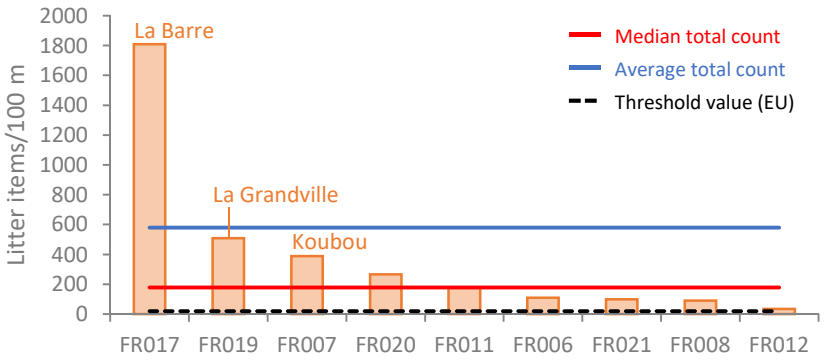
9 sites, 137 surveys

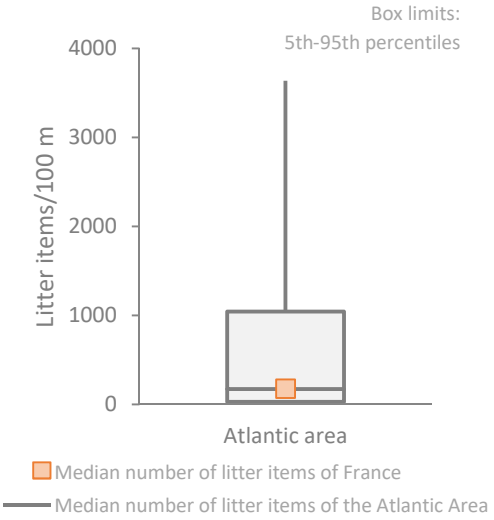
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

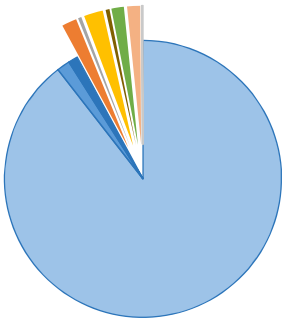
Median total count: 178 items/100 m
Average total count: 579 items/100 m





Abundance and distribution (categories and groups of interest)

Distribution of the total count



- PLASTIC
- SANITARY*
- MEDICAL*
- RUBBER
- PAPER
- CLOTH
- WOOD
- METAL
- GLASS
- POTTERY

Total plastic = 92,1%
PLASTIC (89,5%) + SANITARY* (1,5%) + MEDICAL* (1,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 38 items/100 m
27,2% of the total count

Fishery related litter items
Median = 55 items/100 m
22,4% of the total count

Plastic bags
Median = 1 item/100 m
0,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 22 fragments/100 m
33,4% of the total count

Specific litter items and Top5

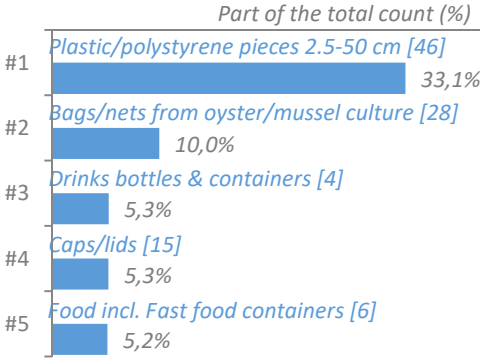
Cigarette filters represent
2,8%
of the total count

Cotton bud sticks represent
0,9%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,6%
of the total count

Top5 ranking of litter types



SPAIN (Atlantic area)

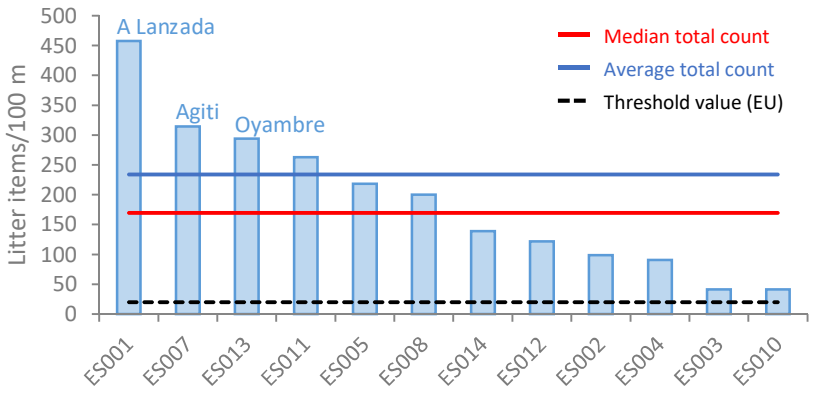
12 sites, 189 surveys

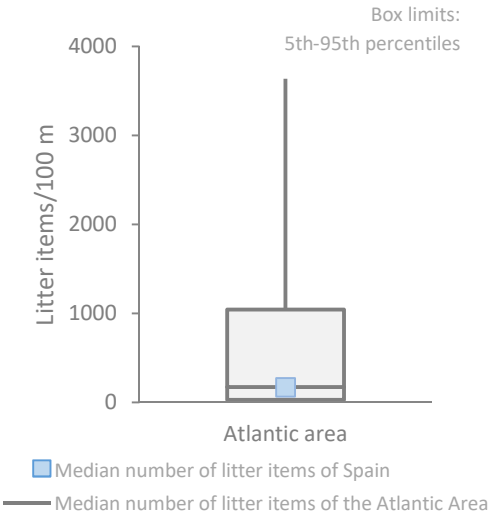
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

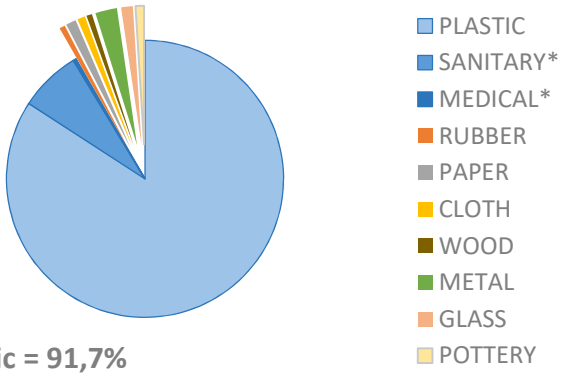
Median total count: 170 items/100 m
Average total count: 234 items/100 m





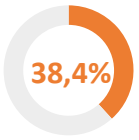
Abundance and distribution (categories and groups of interest)

Distribution of the total count



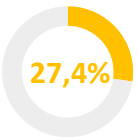
Total plastic = 91,7%
PLASTIC (84,1%) + SANITARY* (7,2%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 41 items/100 m



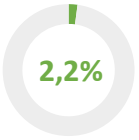
of the total count

Fishery related litter items
Median = 35 items/100 m



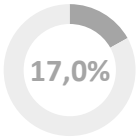
of the total count

Plastic bags
Median = 3 items/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 14 fragments/100 m



of the total count

Specific litter items and Top5

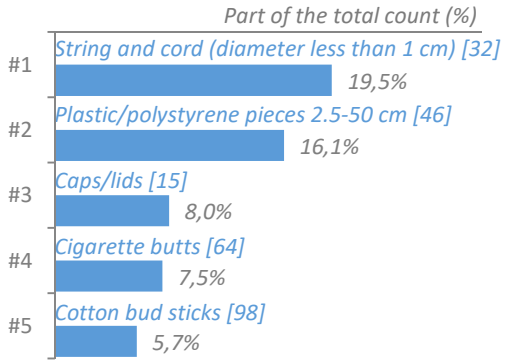
Cigarette filters represent
7,5%
of the total count

Cotton bud sticks represent
5,7%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



PORTUGAL (Atlantic area)

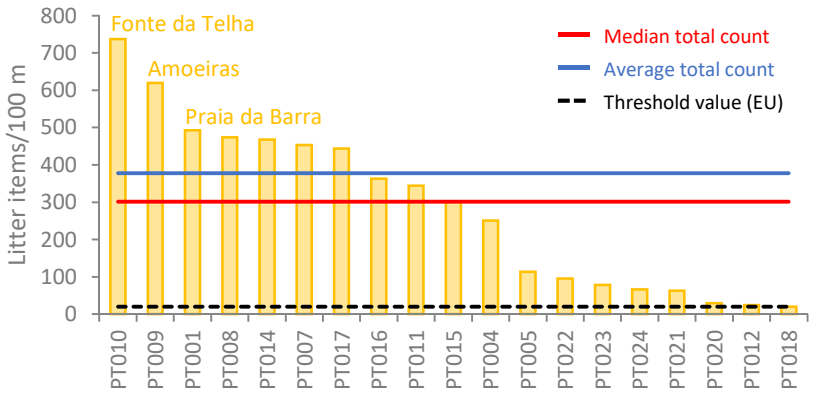
19 sites, 268 surveys

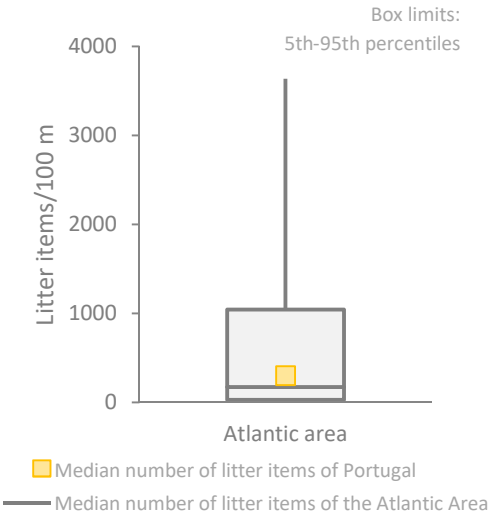
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

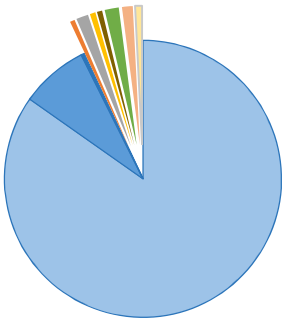
Median total count: 301 items/100 m
Average total count: 378 items/100 m





Abundance and distribution (categories and groups of interest)

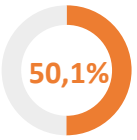
Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

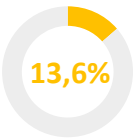
Total plastic = 93%
PLASTIC (84,7%) + SANITARY* (7,9%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 127 items/100 m



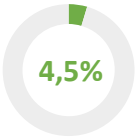
of the total count

Fishery related litter items
Median = 18 items/100 m



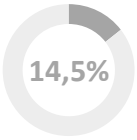
of the total count

Plastic bags
Median = 4 items/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 14 fragments/100 m



of the total count

Specific litter items and Top5

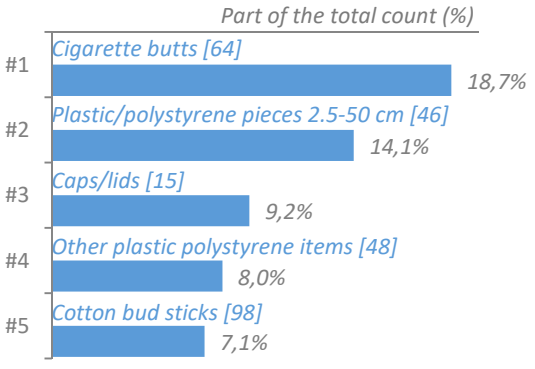
Cigarette filters represent
18,7%
of the total count

Cotton bud sticks represent
7,1%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,4%
of the total count

Top5 ranking of litter types



OSPAR Region: GREATER NORTH SEA

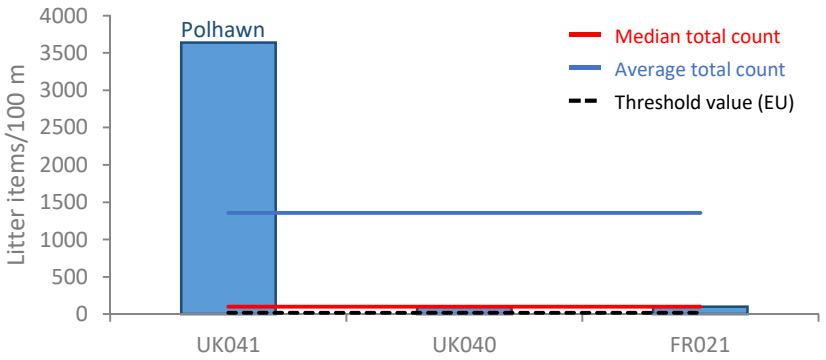
3 sites, 33 surveys

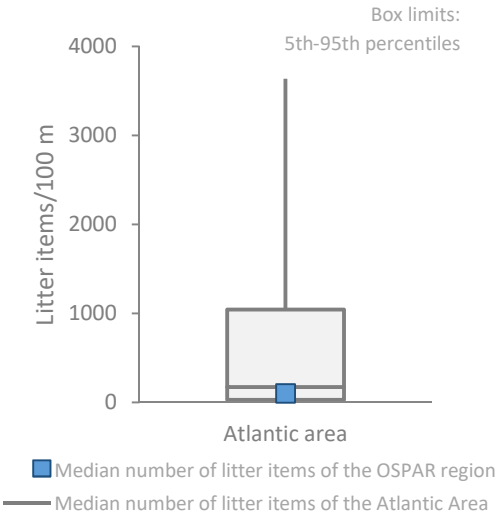
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

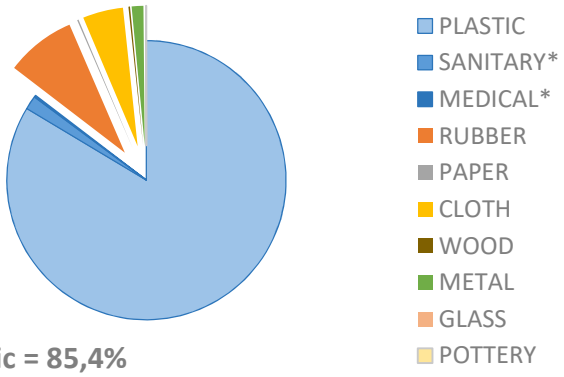
Median total count: 102 items/100 m
Average total count: 1357 items/100 m





Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 85,4%
PLASTIC (83,6%) + SANITARY* (1,6%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 38 items/100 m
20,8% of the total count

Fishery related litter items
Median = 26 items/100 m
18,1% of the total count

Plastic bags
Median = 2 items/100 m
1,9% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 39 fragments/100 m
33,1% of the total count

Specific litter items and Top5

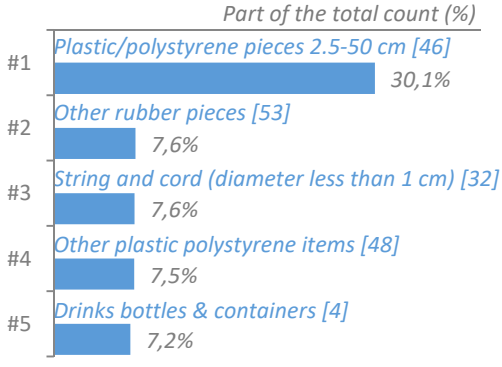
Cigarette filters represent
0,4%
of the total count

Cotton bud sticks represent
1,2%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,4%
of the total count

Top5 ranking of litter types



OSPAR Region: CELTIC SEAS

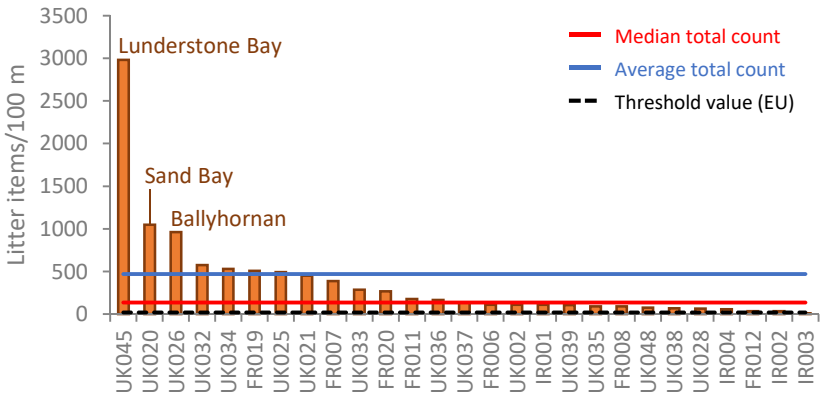
27 sites, 416 surveys

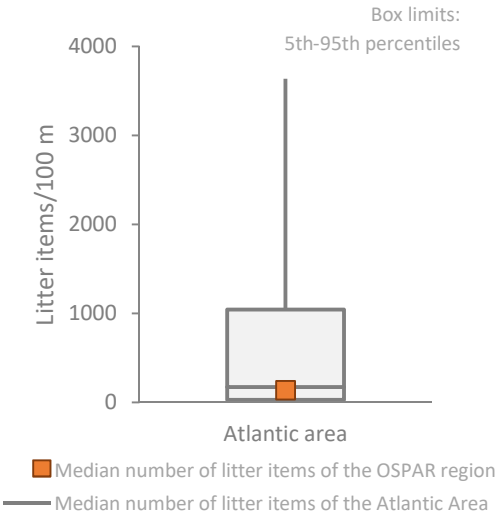
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

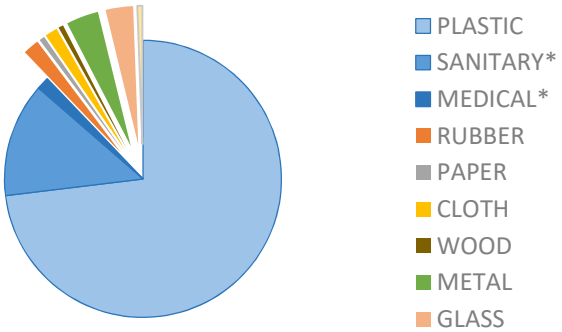
Median total count: 137 items/100 m
Average total count: 469 items/100 m





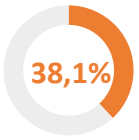
Abundance and distribution (categories and groups of interest)

Distribution of the total count



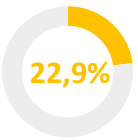
Total plastic = 87,7%
PLASTIC (73%) + SANITARY* (13,3%) + MEDICAL* (1,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 35 items/100 m



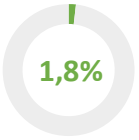
of the total count

Fishery related litter items
Median = 39 items/100 m



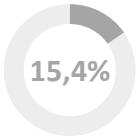
of the total count

Plastic bags
Median = 3 items/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 22 fragments/100 m



of the total count

Specific litter items and Top5

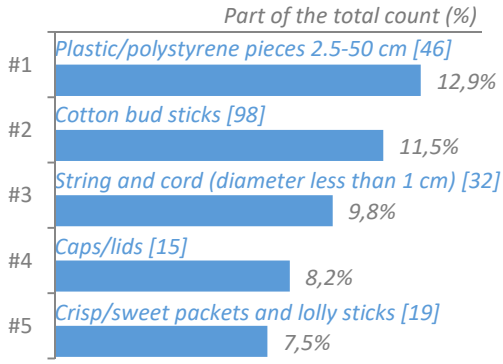
Cigarette filters represent
0,6%
of the total count

Cotton bud sticks represent
11,5%
of the total count

Balloons represent
0,5%
of the total count

Hunting cartridges represent
0,7%
of the total count

Top5 ranking of litter types



OSPAR Region: BAY OF BISCAY AND IBERIAN COAST

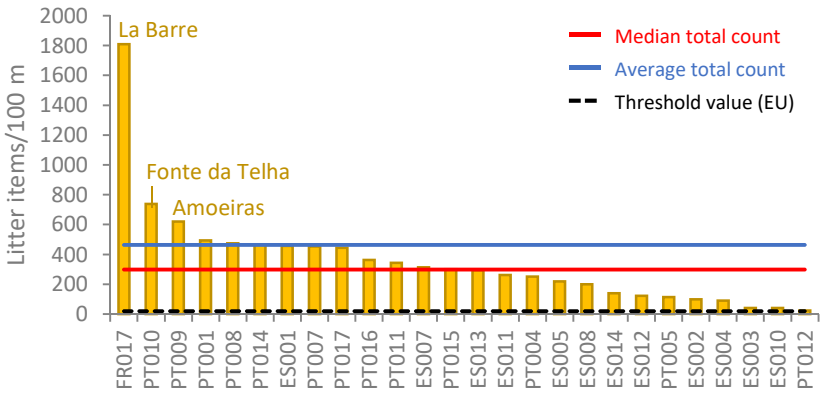
26 sites, 384 surveys

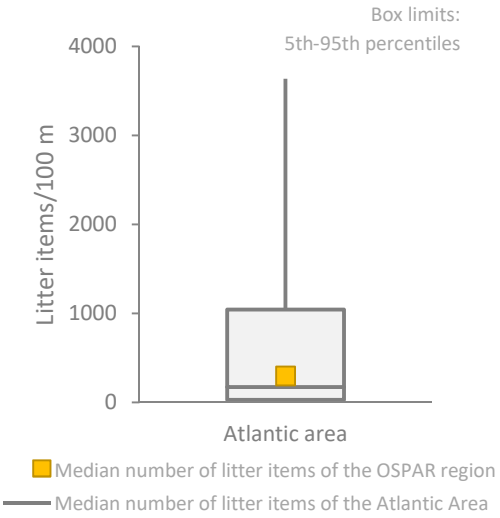
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

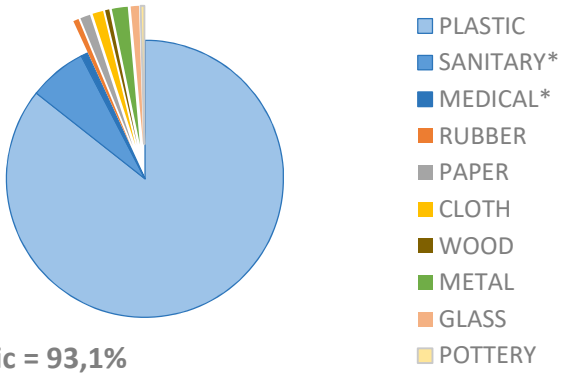
Median total count: 298 items/100 m
Average total count: 464 items/100 m





Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 93,1%
PLASTIC (85,6%) + SANITARY* (6,8%) + MEDICAL* (0,8%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 127 items/100 m
45,2% of the total count

Fishery related litter items
Median = 46 items/100 m
15,5% of the total count

Plastic bags
Median = 4 items/100 m
3,1% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 18 fragments/100 m
20,7% of the total count

Specific litter items and Top5

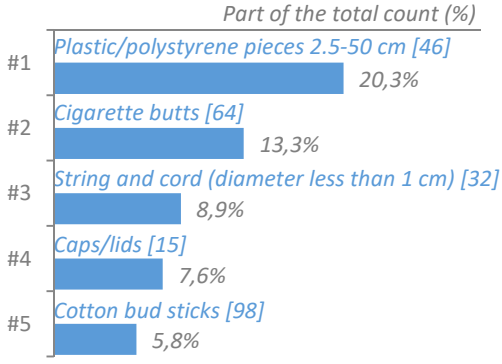
Cigarette filters represent **13,3%** of the total count

Cotton bud sticks represent **5,8%** of the total count

Balloons represent **0,2%** of the total count

Hunting cartridges represent **0,4%** of the total count

Top5 ranking of litter types



OSPAR Region: WIDER ATLANTIC

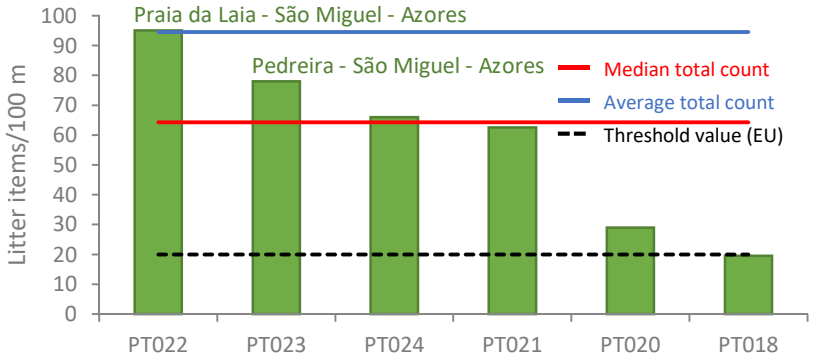
6 sites, 89 surveys

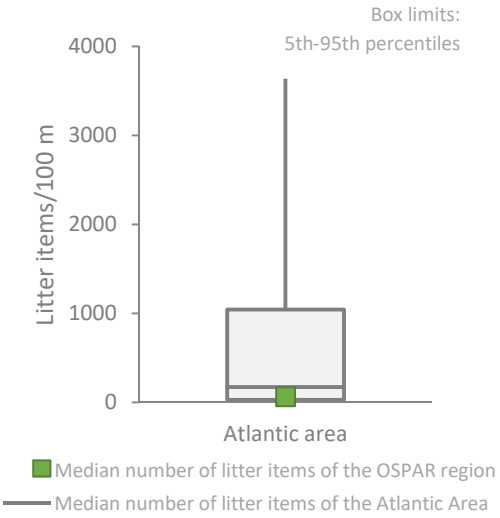
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Abundance and comparison at national and Atlantic area levels

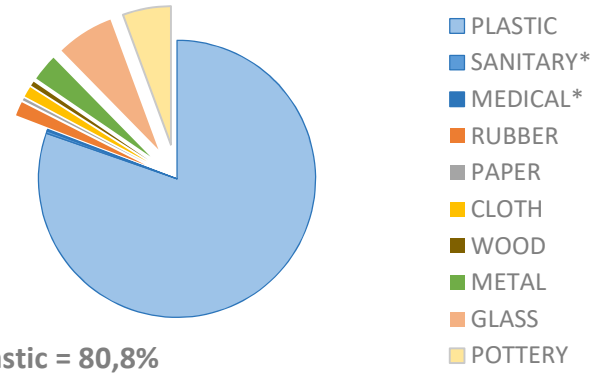
Median total count: 64 items/100 m
Average total count: 95 items/100 m





Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 80,8%
PLASTIC (80,4%) + SANITARY* (0,3%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 6 items/100 m
18,1% of the total count

Fishery related litter items
Median = 1 item/100 m
5,4% of the total count

Plastic bags
Median = 0 item/100 m
1,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 2 fragments/100 m
34,9% of the total count

Specific litter items and Top5

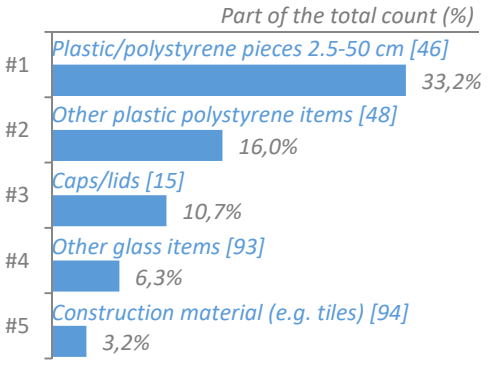
Cigarette filters represent
2,7%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
1,1%
of the total count

Top5 ranking of litter types



Long Strand (IR001)

16 surveys

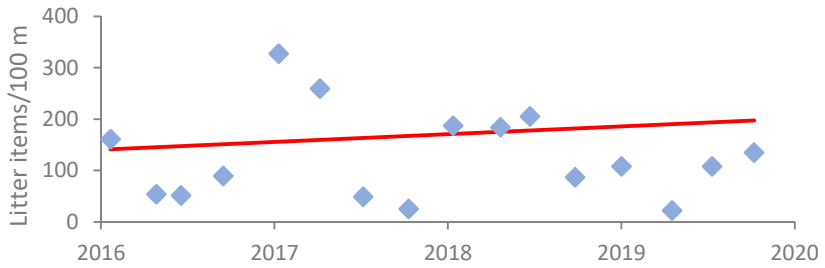
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 51.5522925
Lat. -8.955066944

Abundance, trend and comparison at national and Atlantic area levels

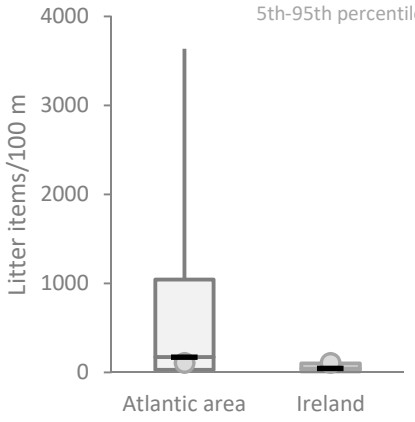
Median total count: 108 items/100 m
Average total count: 128 items/100 m



Non-significant increase of the total abundance over four years

Slope is 15 items/100 m per year
p-value = 0,25

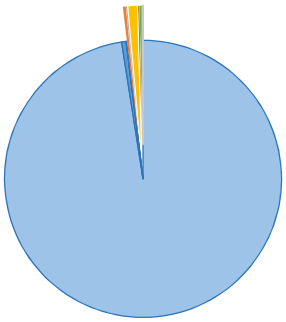
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 98,1%
PLASTIC (97,5%) + SANITARY* (0,5%) + MEDICAL* (0%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 32 items/100 m
23,7% of the total count

Fishery related litter items
Median = 70 items/100 m
57,7% of the total count

Plastic bags
Median = 2 items/100 m
3,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 10 fragments/100 m
12,7% of the total count

Specific litter items and Top5

Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,9%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *String and cord (diameter less than 1 cm) [32]* 44,4%
#2 *Plastic/polystyrene pieces 2.5-50 cm [46]* 12,6%
#3 *Caps/lids [15]* 8,0%
#4 *Rope (diameter more than 1 cm) [31]* 6,6%
#5 *Crisp/sweet packets and lolly sticks [19]* 5,1%

Silver Strand (IR002)

16 surveys

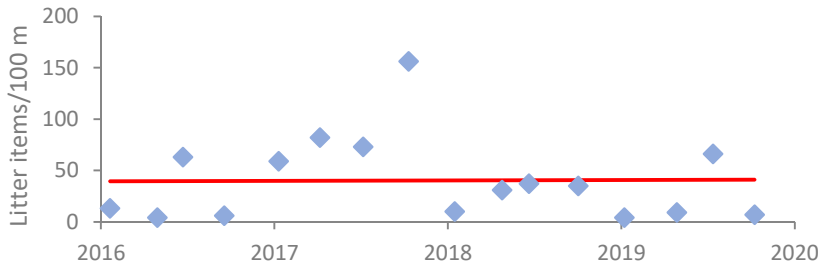
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 53.6458361
Lat. -9.886079167

Abundance, trend and comparison at national and Atlantic area levels

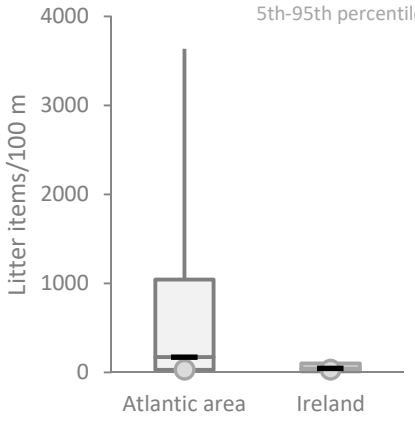
Median total count: 33 items/100 m
Average total count: 41 items/100 m



Non-significant increase of the total abundance over four years

Slope is 0,5 items/100 m per year
p-value = 0,482

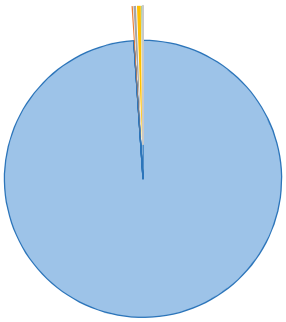
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 98,9%
PLASTIC (98,9%) + SANITARY* (0%) + MEDICAL* (0%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 4 items/100 m
15,1% of the total count

Fishery related litter items
Median = 20 items/100 m
68,2% of the total count

Plastic bags
Median = 0 item/100 m
2,0% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m
6,9% of the total count

Specific litter items and Top5

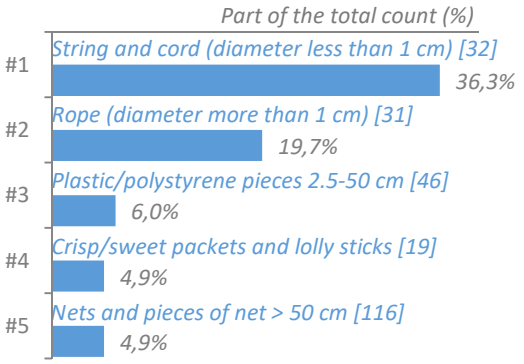
Cigarette filters represent
0,3%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



Carnesore (IR003)

16 surveys

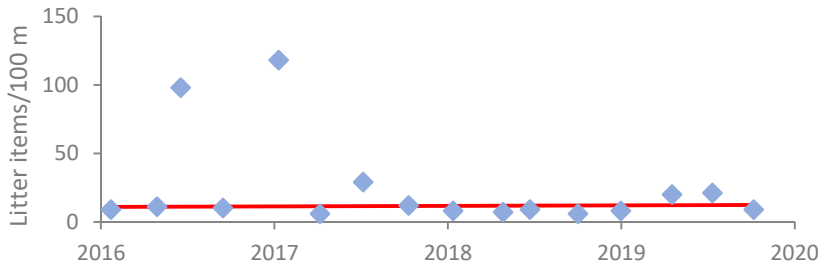
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 52.19220333
Lat. -6.348813056

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 10 items/100 m
Average total count: 24 items/100 m

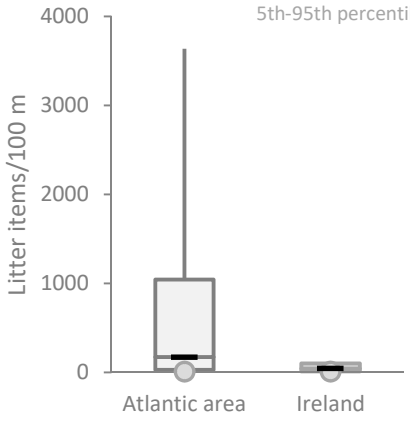


Non-significant increase of the total abundance over four years

Slope is 0,4 items/100 m per year

p-value = 0,393

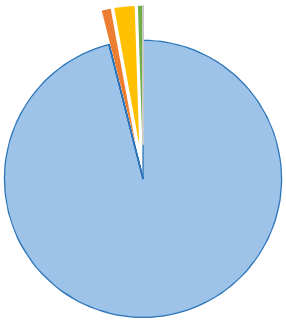
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 96,1%

PLASTIC (96,1%) + SANITARY* (0%) + MEDICAL* (0%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 5 items/100 m
28,1% of the total count

Fishery related litter items
Median = 5 items/100 m
57,0% of the total count

Plastic bags
Median = 1 item/100 m
6,0% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m
4,2% of the total count

Specific litter items and Top5

Cigarette filters represent
0,8%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,8%
of the total count

Hunting cartridges represent
0,0%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *String and cord (diameter less than 1 cm) [32]* — *27,6%*
#2 *Rope (diameter more than 1 cm) [31]* — *16,3%*
#3 *Fishing line (angling) [35]* — *11,3%*
#4 *Crisp/sweet packets and lolly sticks [19]* — *6,3%*
#5 *Food incl. Fast food containers [6]* — *4,7%*

Clogherhead - South (IR004)

16 surveys

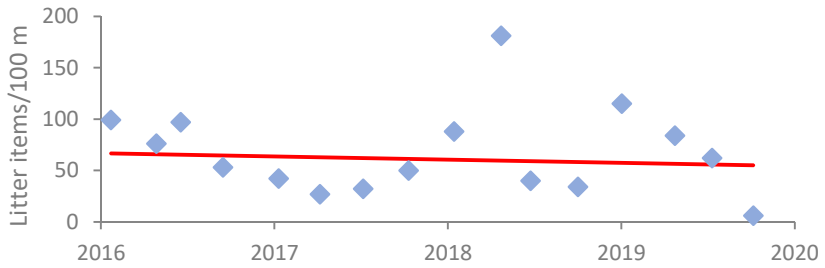
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 53.78874833
Lat. -6.2339975

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 58 items/100 m
Average total count: 68 items/100 m

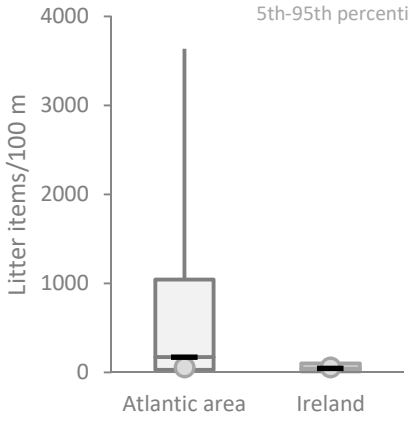


Non-significant decrease of the total abundance over four years

Slope is -3,1 items/100 m per year

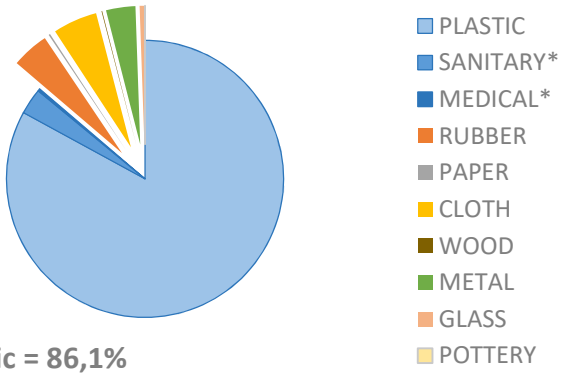
p-value = 0,343

Box limits:
5th-95th percentiles



Abundance and distribution (categories and groups of interest)

Distribution of the total count

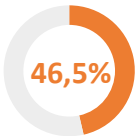


Total plastic = 86,1%

PLASTIC (82,8%) + SANITARY* (3%) + MEDICAL* (0,3%)

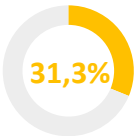
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 29 items/100 m



of the total count

Fishery related litter items
Median = 19 items/100 m

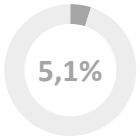


of the total count

Plastic bags
Median = 5 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 3 fragments/100 m



of the total count

Specific litter items and Top5

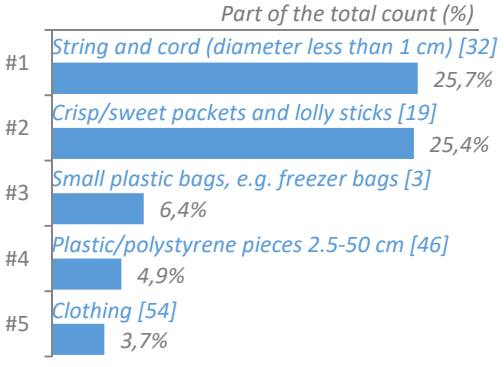
Cigarette filters represent
1,7%
of the total count

Cotton bud sticks represent
1,0%
of the total count

Balloons represent
1,9%
of the total count

Hunting cartridges represent
0,0%
of the total count

Top5 ranking of litter types



Tan-y-Bwlch Beach (UK002)

15 surveys

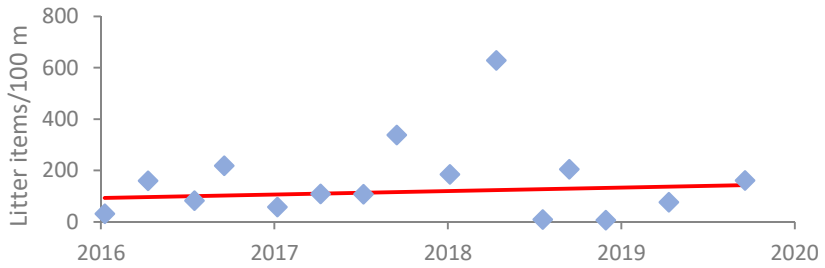
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 52.40365506
Lat. -4.089061404

Abundance, trend and comparison at national and Atlantic area levels

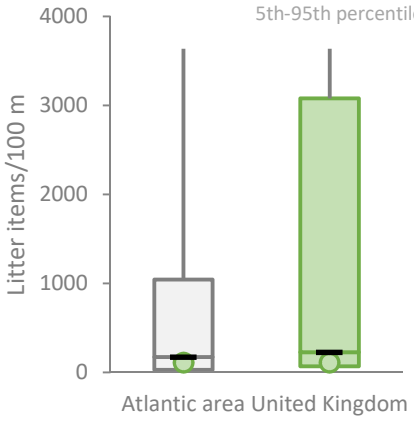
Median total count: 109 items/100 m
Average total count: 158 items/100 m



Non-significant increase of the total abundance over four years

Slope is 13,5 items/100 m per year
p-value = 0,423

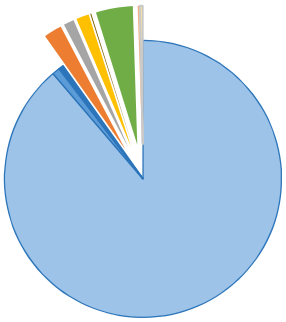
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 89,8%
PLASTIC (88,3%) + SANITARY* (0,9%) + MEDICAL* (0,6%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 44 items/100 m
37,6% of the total count

Fishery related litter items
Median = 19 items/100 m
16,9% of the total count

Plastic bags
Median = 4 items/100 m
5,5% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 27 fragments/100 m
21,3% of the total count

Specific litter items and Top5

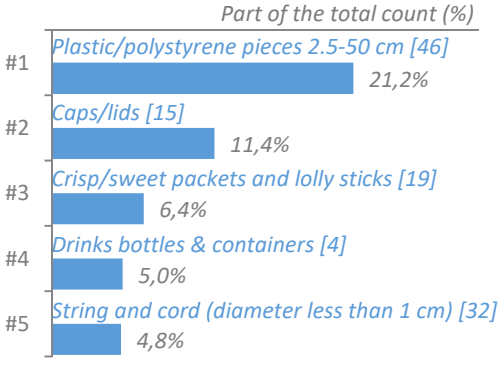
Cigarette filters represent
0,2%
of the total count

Cotton bud sticks represent
0,4%
of the total count

Balloons represent
1,5%
of the total count

Hunting cartridges represent
1,3%
of the total count

Top5 ranking of litter types



Sand Bay (UK020)

16 surveys

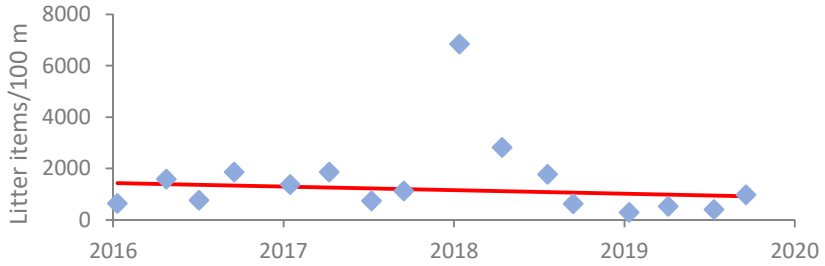
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 51.3400358
Lat. -4.089061404

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 1049 items/100 m
Average total count: 1512 items/100 m

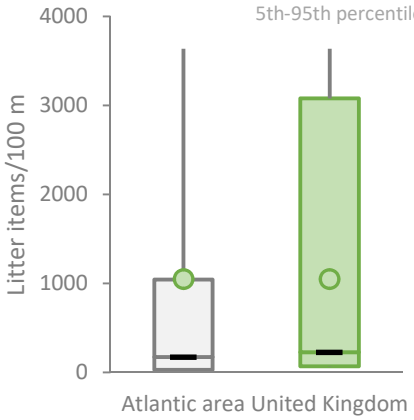


Non-significant decrease of the total abundance over four years

Slope is -136 items/100 m per year

p-value = 0,114

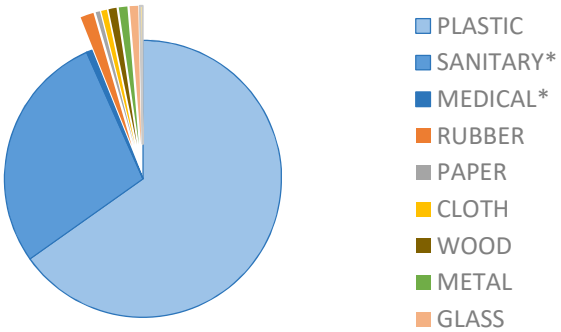
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 93,6%
PLASTIC (65%) + SANITARY* (28%) + MEDICAL* (0,6%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 492 items/100 m
59,2% of the total count

Fishery related litter items
Median = 68 items/100 m
5,3% of the total count

Plastic bags
Median = 22 items/100 m
1,5% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 248 fragments/100 m
21,8% of the total count

Specific litter items and Top5

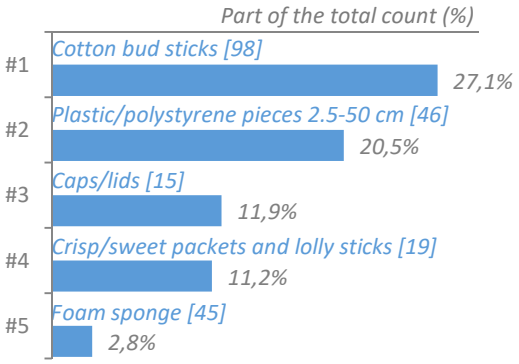
Cigarette filters represent
1,3%
of the total count

Cotton bud sticks represent
27,1%
of the total count

Balloons represent
0,8%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



Langland Bay (UK021)

15 surveys

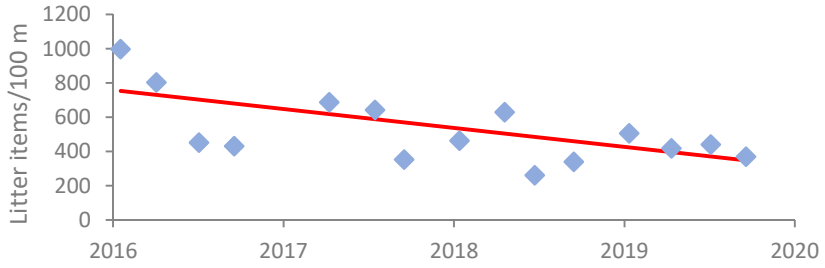
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 51.56596991
Lat. -4.010025357

Abundance, trend and comparison at national and Atlantic area levels

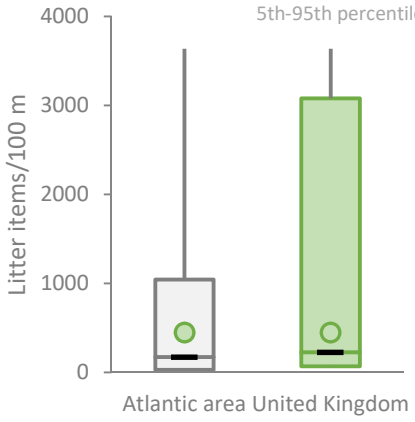
Median total count: 450 items/100 m
Average total count: 519 items/100 m



Significant decrease of the total abundance over four years

Slope is -110 items/100 m per year
p-value = 0,0104

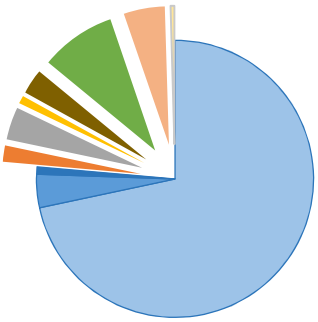
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 76,2%
PLASTIC (71,5%) + SANITARY* (3,9%) + MEDICAL* (0,8%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 167 items/100 m
34,7% of the total count

Fishery related litter items
Median = 39 items/100 m
13,4% of the total count

Plastic bags
Median = 8 items/100 m
1,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 96 fragments/100 m
21,4% of the total count

Specific litter items and Top5

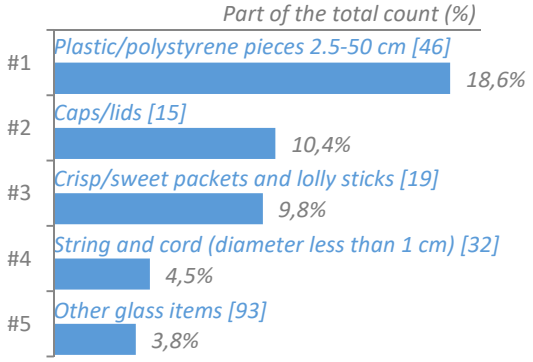
Cigarette filters represent
3,2%
of the total count

Cotton bud sticks represent
3,3%
of the total count

Balloons represent
0,6%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



Ardglass (UK025)

16 surveys

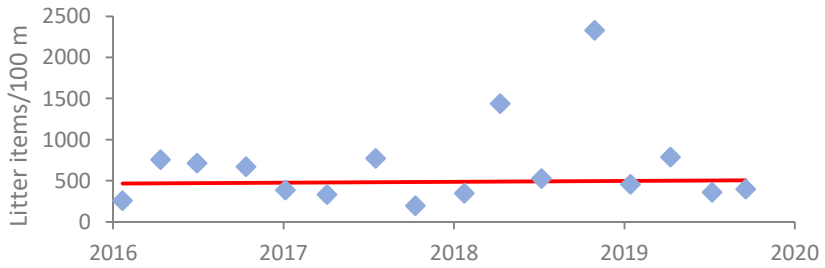
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.26327
Lat. -5.60887

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 493 items/100 m
Average total count: 670 items/100 m

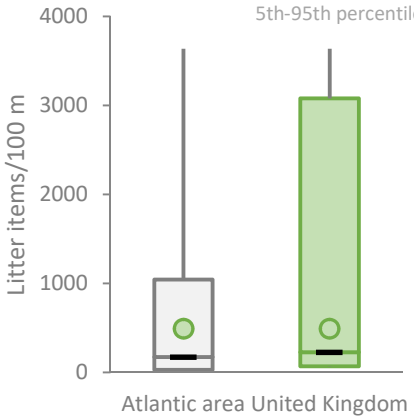


Non-significant increase of the total abundance over four years

Slope is 11,5 items/100 m per year

p-value = 0,345

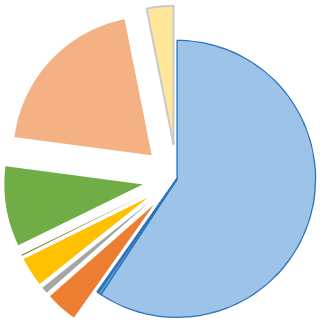
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 59,8%

PLASTIC (59,2%) + SANITARY* (0,4%) + MEDICAL* (0,2%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 103 items/100 m
20,8% of the total count

Fishery related litter items
Median = 105 items/100 m
22,5% of the total count

Plastic bags
Median = 15 items/100 m
2,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 55 fragments/100 m
9,3% of the total count

Specific litter items and Top5

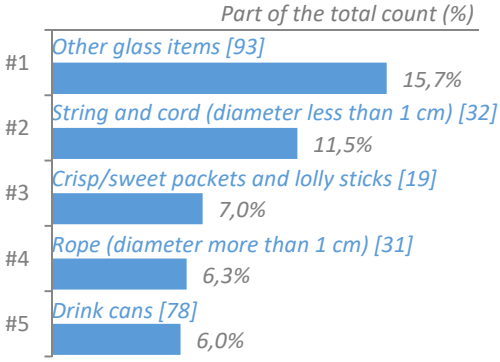
Cigarette filters represent
0,1%
of the total count

Cotton bud sticks represent
0,3%
of the total count

Balloons represent
0,5%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types



Ballyhornan (UK026)

16 surveys

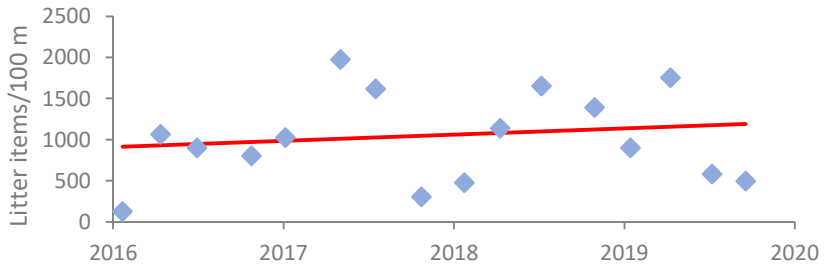
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.3025
Lat. -5.5533

Abundance, trend and comparison at national and Atlantic area levels

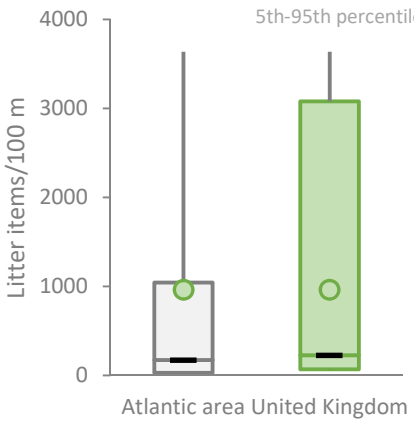
Median total count: 963 items/100 m
Average total count: 1012 items/100 m



Non-significant increase of the total abundance over four years

Slope is 75,2 items/100 m per year
p-value = 0,345

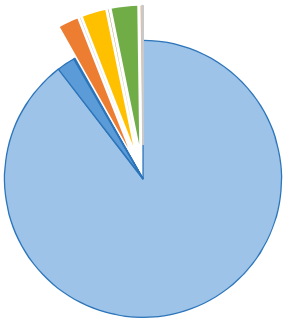
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 91,8%
PLASTIC (89,5%) + SANITARY* (2,1%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 427 items/100 m
40,6% of the total count

Fishery related litter items
Median = 171 items/100 m
23,1% of the total count

Plastic bags
Median = 11 items/100 m
1,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 200 fragments/100 m
18,4% of the total count

Specific litter items and Top5

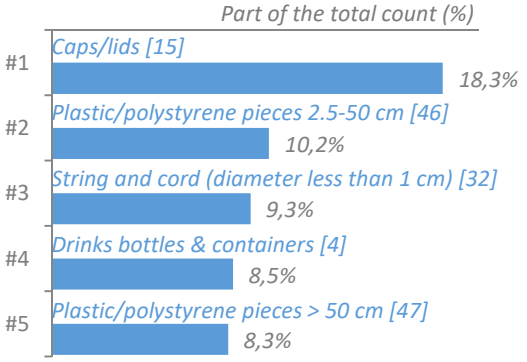
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
1,8%
of the total count

Balloons represent
0,4%
of the total count

Hunting cartridges represent
2,8%
of the total count

Top5 ranking of litter types



Ballywalter (UK028)

16 surveys

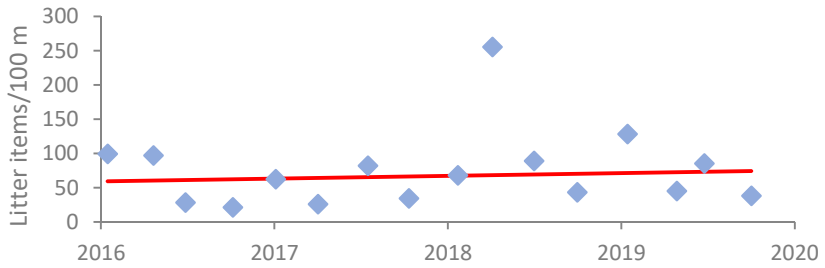
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.5426
Lat. -5.481

Abundance, trend and comparison at national and Atlantic area levels

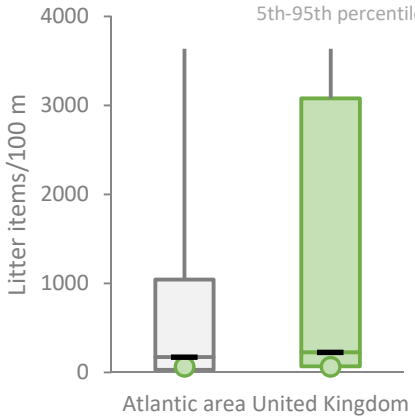
Median total count: 65 items/100 m
Average total count: 75 items/100 m



Non-significant increase of the total abundance over four years

Slope is 4,1 items/100 m per year
p-value = 0,378

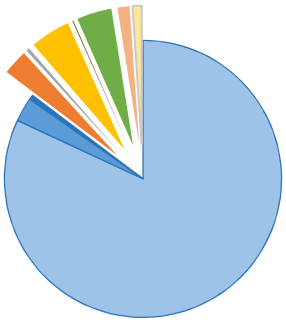
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 85%
PLASTIC (81,7%) + SANITARY* (2,8%) + MEDICAL* (0,5%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 13 items/100 m
29,5% of the total count

Fishery related litter items
Median = 12 items/100 m
25,7% of the total count

Plastic bags
Median = 3 items/100 m
7,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 9 fragments/100 m
19,8% of the total count

Specific litter items and Top5

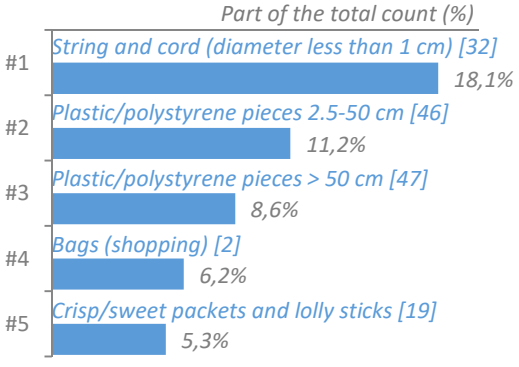
Cigarette filters represent **0,4%** of the total count

Cotton bud sticks represent **2,3%** of the total count

Balloons represent **1,7%** of the total count

Hunting cartridges represent **0,3%** of the total count

Top5 ranking of litter types



Kilkeel North (UK032)

16 surveys

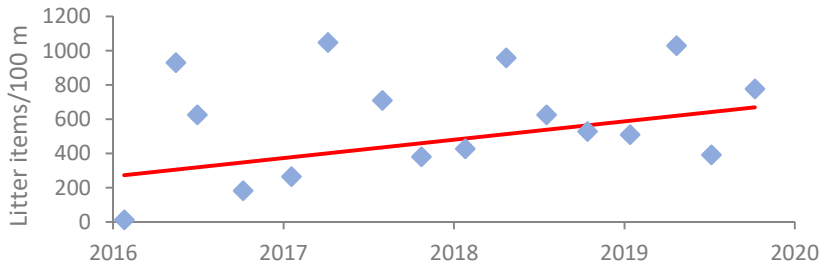
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.062
Lat. -5.9689

Abundance, trend and comparison at national and Atlantic area levels

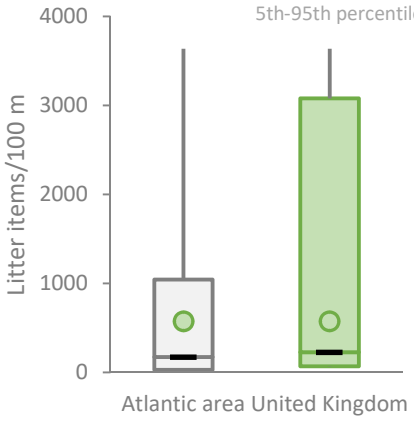
Median total count: 576 items/100 m
Average total count: 587 items/100 m



Non-significant increase of the total abundance over four years

Slope is 107 items/100 m per year
p-value = 0,175

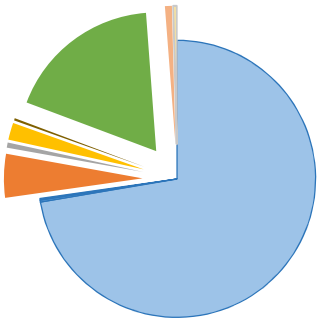
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 72,7%
PLASTIC (72,3%) + SANITARY* (0,2%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 130 items/100 m
27,7% of the total count

Fishery related litter items
Median = 79 items/100 m
16,2% of the total count

Plastic bags
Median = 4 items/100 m
1,0% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 71 fragments/100 m
15,6% of the total count

Specific litter items and Top5

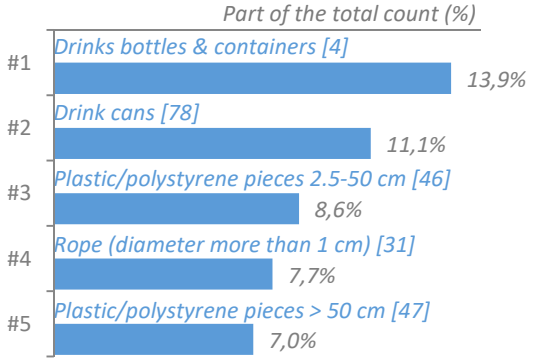
Cigarette filters represent
0,1%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



Portavogie (UK033)

16 surveys

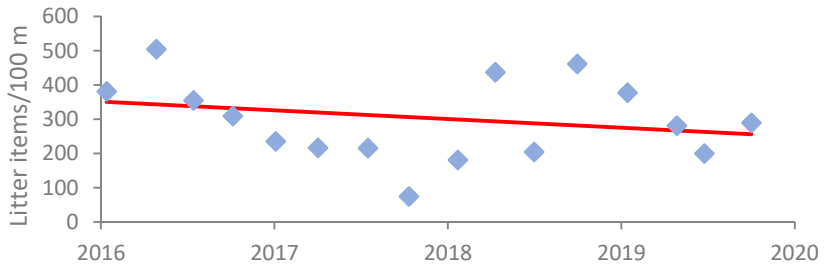
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.4772
Lat. -5.4399

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 285 items/100 m
Average total count: 295 items/100 m

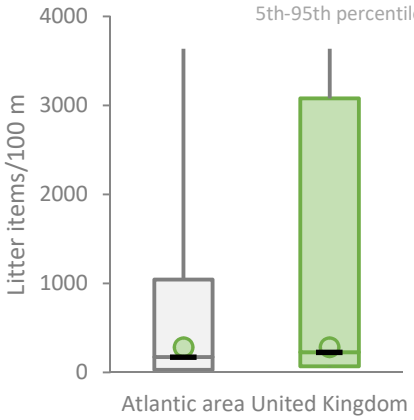


Non-significant decrease of the total abundance over four years

Slope is -25,4 items/100 m per year

p-value = 0,114

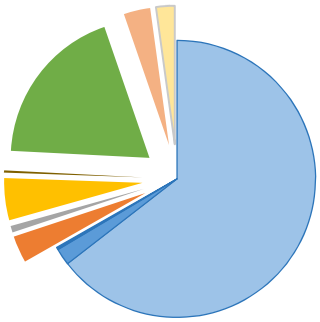
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 66,7%

PLASTIC (64,5%) + SANITARY* (2%) + MEDICAL* (0,3%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 91 items/100 m
31,8% of the total count

Fishery related litter items
Median = 39 items/100 m
13,1% of the total count

Plastic bags
Median = 10 items/100 m
4,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 33 fragments/100 m
12,1% of the total count

Specific litter items and Top5

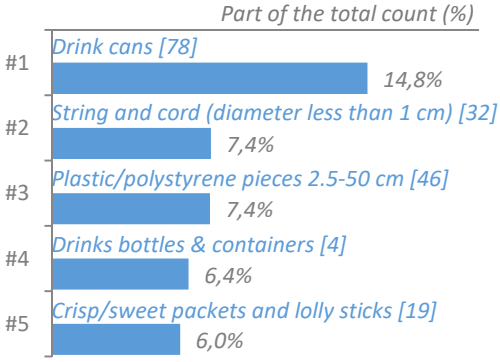
Cigarette filters represent
0,4%
of the total count

Cotton bud sticks represent
1,5%
of the total count

Balloons represent
0,4%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



Rathlin (UK034)

16 surveys

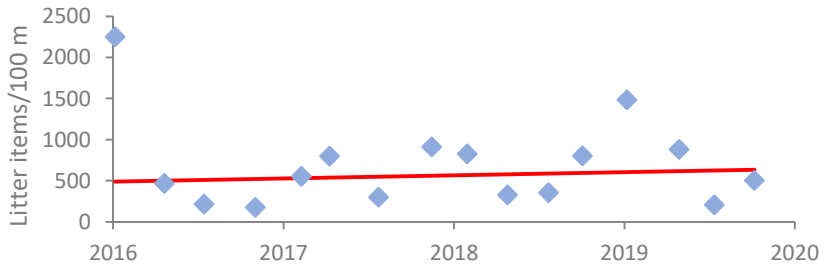
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 55.2909
Lat. -6.1942

Abundance, trend and comparison at national and Atlantic area levels

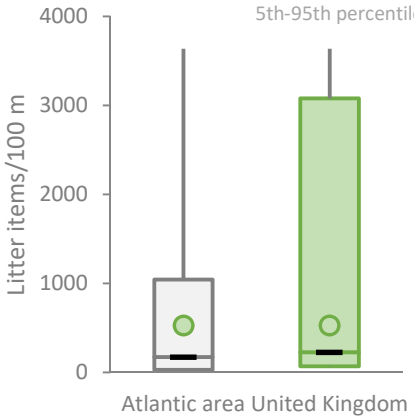
Median total count: 529 items/100 m
Average total count: 691 items/100 m



Non-significant increase of the total abundance over four years

Slope is 38,2 items/100 m per year
p-value = 0,345

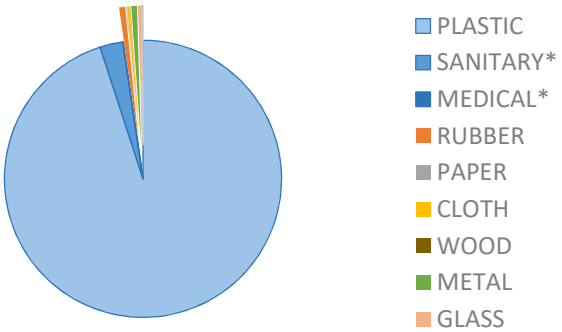
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

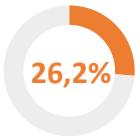
Abundance and distribution (categories and groups of interest)

Distribution of the total count



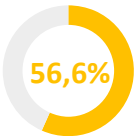
Total plastic = 97,7%
PLASTIC (95%) + SANITARY* (2,7%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 117 items/100 m



of the total count

Fishery related litter items
Median = 279 items/100 m

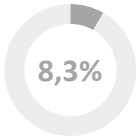


of the total count

Plastic bags
Median = 18 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 41 fragments/100 m



of the total count

Specific litter items and Top5

Cigarette filters represent
0,7%
of the total count

Cotton bud sticks represent
2,5%
of the total count

Balloons represent
0,5%
of the total count

Hunting cartridges represent
0,8%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *String and cord (diameter less than 1 cm) [32]* — *41,1%*
#2 *Rope (diameter more than 1 cm) [31]* — *10,5%*
#3 *Crisp/sweet packets and lolly sticks [19]* — *9,8%*
#4 *Plastic/polystyrene pieces 2.5-50 cm [46]* — *6,7%*
#5 *Caps/lids [15]* — *5,2%*

Rostrevor (UK035)

16 surveys

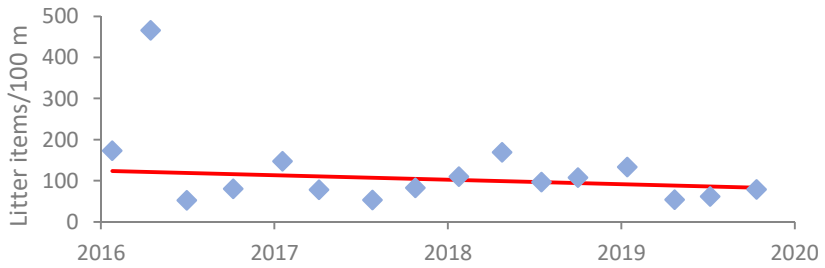
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.0984
Lat. -6.2018

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 90 items/100 m
Average total count: 122 items/100 m

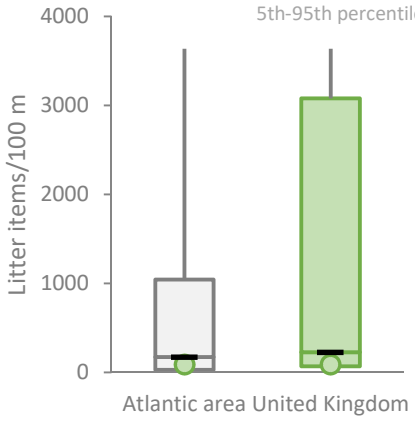


Non-significant decrease of the total abundance over four years

Slope is -10,9 items/100 m per year

p-value = 0,225

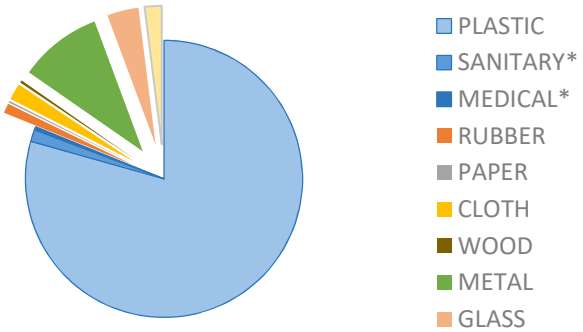
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 81,1%

PLASTIC (79,4%) + SANITARY* (1,4%) + MEDICAL* (0,4%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 35 items/100 m
33,3% of the total count

Fishery related litter items
Median = 6 items/100 m
20,2% of the total count

Plastic bags
Median = 3 items/100 m
2,5% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 21 fragments/100 m
17,9% of the total count

Specific litter items and Top5

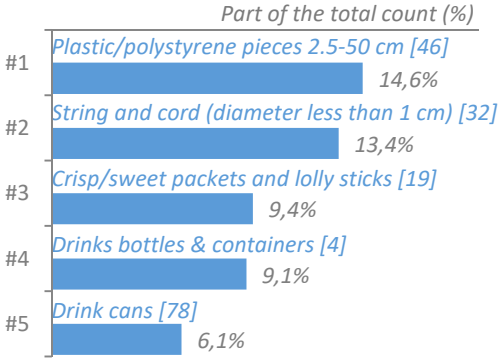
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
1,1%
of the total count

Balloons represent
0,4%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types



Runkerry (UK036)

15 surveys

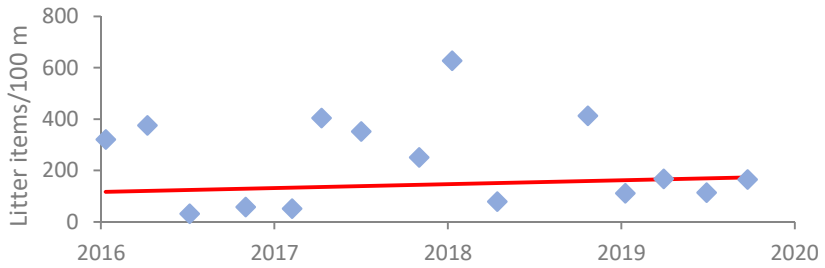
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 55.2235
Lat. -6.5319

Abundance, trend and comparison at national and Atlantic area levels

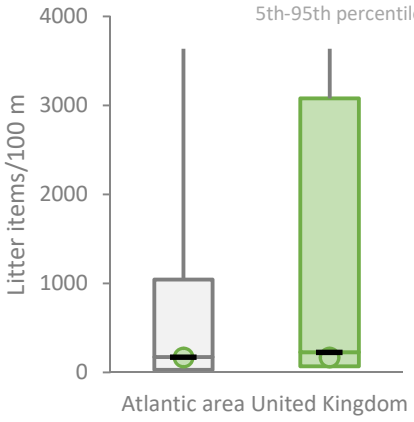
Median total count: 167 items/100 m
Average total count: 234 items/100 m



Non-significant increase of the total abundance over four years

Slope is 14,9 items/100 m per year
p-value = 0,423

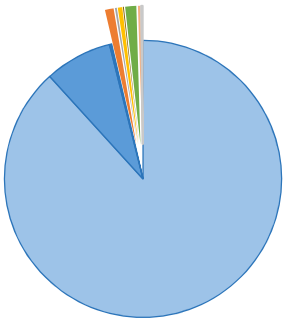
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 96,4%
PLASTIC (88,3%) + SANITARY* (7,8%) + MEDICAL* (0,3%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 67 items/100 m
37,9% of the total count

Fishery related litter items
Median = 10 items/100 m
5,2% of the total count

Plastic bags
Median = 3 items/100 m
1,0% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 76 fragments/100 m
42,8% of the total count

Specific litter items and Top5

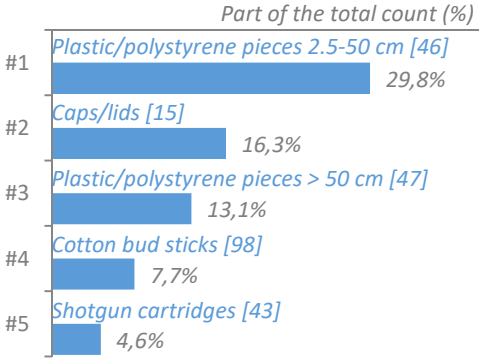
Cigarette filters represent
0,1%
of the total count

Cotton bud sticks represent
7,7%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
4,6%
of the total count

Top5 ranking of litter types



Tyrella (UK037)

16 surveys

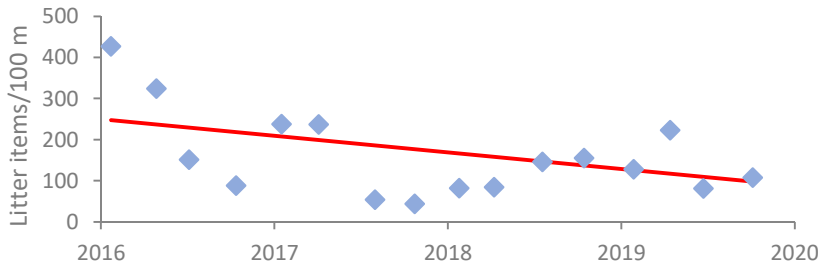
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 54.2491
Lat. -5.7536

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 137 items/100 m
Average total count: 161 items/100 m

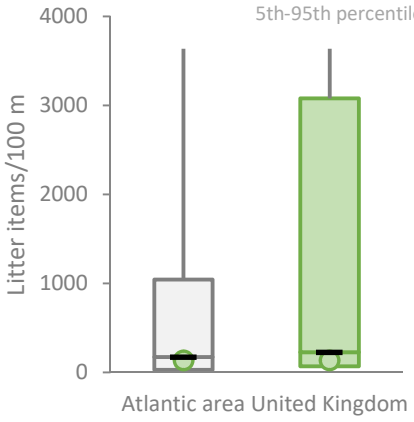


Non-significant decrease of the total abundance over four years

Slope is -40,2 items/100 m per year

p-value = 0,0695

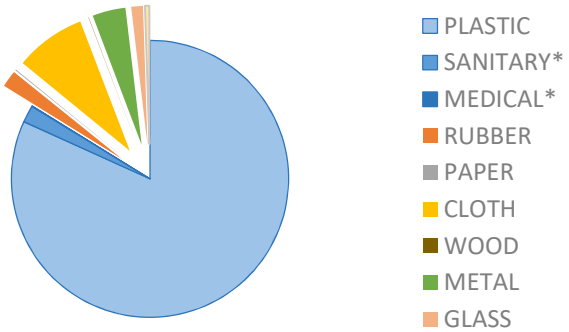
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 83,8%

PLASTIC (81,7%) + SANITARY* (2%) + MEDICAL* (0,1%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 29 items/100 m
25,8% of the total count

Fishery related litter items
Median = 66 items/100 m
40,1% of the total count

Plastic bags
Median = 7 items/100 m
5,1% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 14 fragments/100 m
9,5% of the total count

Specific litter items and Top5

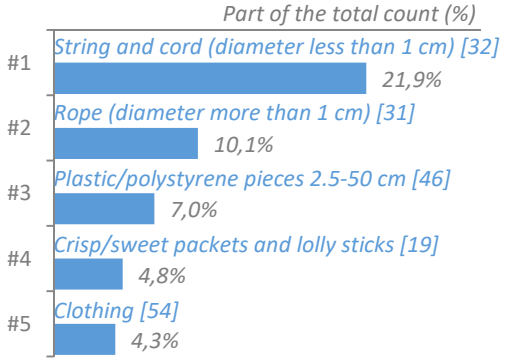
Cigarette filters represent
0,4%
of the total count

Cotton bud sticks represent
1,6%
of the total count

Balloons represent
1,0%
of the total count

Hunting cartridges represent
0,7%
of the total count

Top5 ranking of litter types



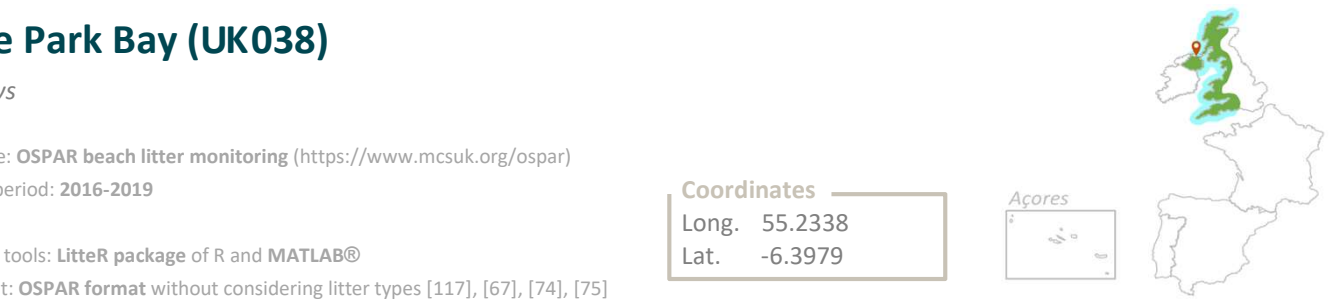
White Park Bay (UK038)

16 surveys

Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

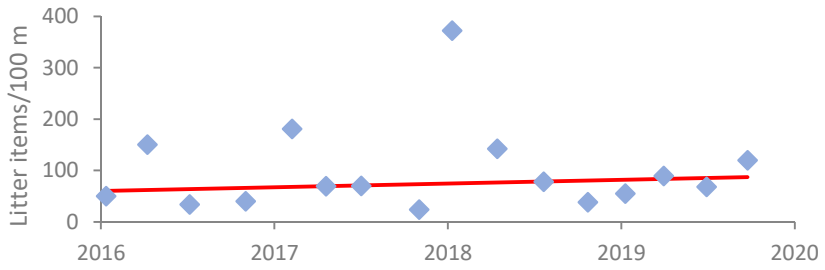
Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 55.2338
Lat. -6.3979



Abundance, trend and comparison at national and Atlantic area levels

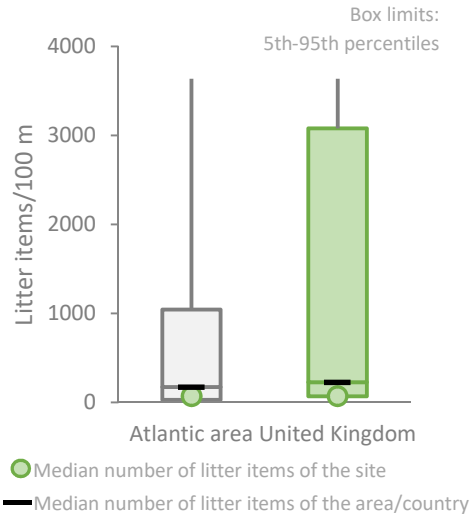
Median total count: 70 items/100 m
Average total count: 99 items/100 m



Non-significant increase of the total abundance over four years

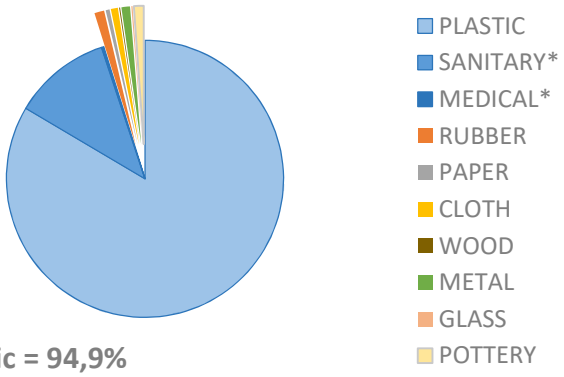
Slope is 7,4 items/100 m per year

p-value = 0,313



Abundance and distribution (categories and groups of interest)

Distribution of the total count

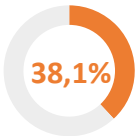


Total plastic = 94,9%

PLASTIC (83,3%) + SANITARY* (11,4%) + MEDICAL* (0,3%)

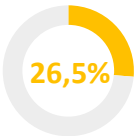
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 28 items/100 m



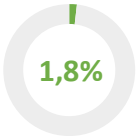
of the total count

Fishery related litter items
Median = 14 items/100 m



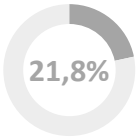
of the total count

Plastic bags
Median = 2 items/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 18 fragments/100 m



of the total count

Specific litter items and Top5

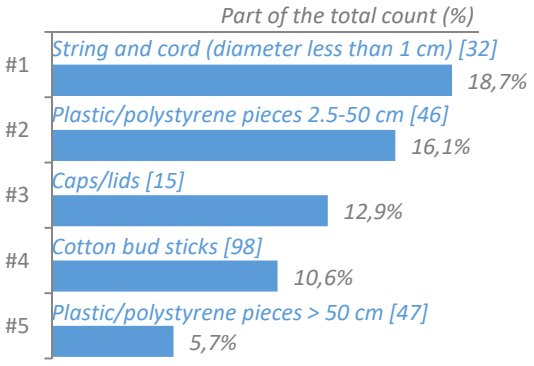
Cigarette filters represent
2,2%
of the total count

Cotton bud sticks represent
10,6%
of the total count

Balloons represent
0,5%
of the total count

Hunting cartridges represent
2,8%
of the total count

Top5 ranking of litter types



Tal-y-Foel (UK039)

12 surveys

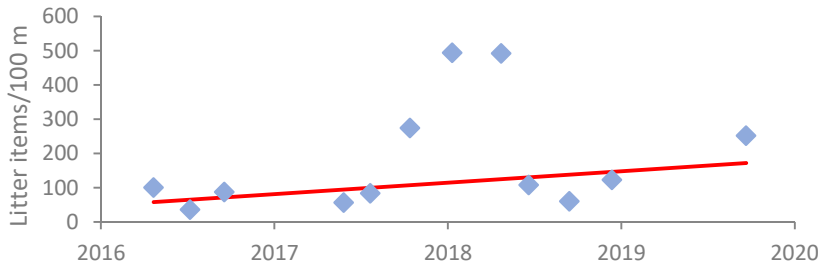
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 53.1489
Lat. -4.298

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 104 items/100 m
Average total count: 180 items/100 m

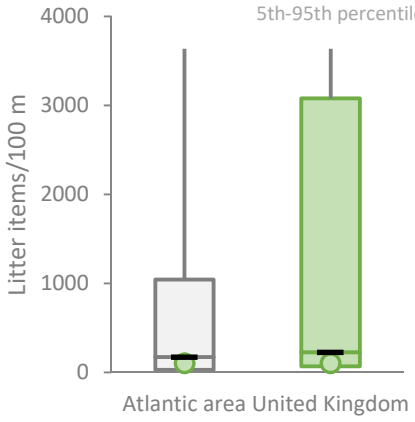


Non-significant increase of the total abundance over four years

Slope is 33,4 items/100 m per year

p-value = 0,0985

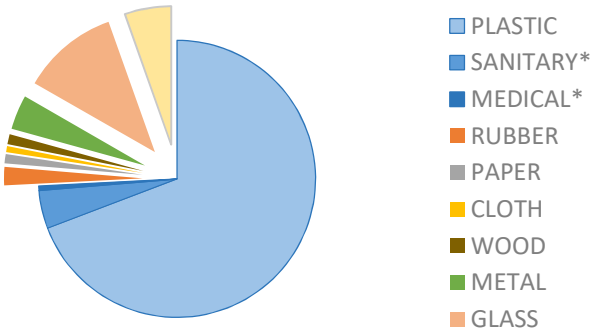
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 73,2%
PLASTIC (68,3%) + SANITARY* (4,4%) + MEDICAL* (0,5%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 31 items/100 m
35,5% of the total count

Fishery related litter items
Median = 23 items/100 m
20,6% of the total count

Plastic bags
Median = 4 items/100 m
3,0% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 9 fragments/100 m
10,0% of the total count

Specific litter items and Top5

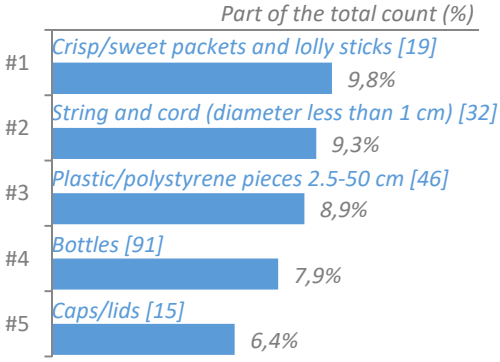
Cigarette filters represent
0,1%
of the total count

Cotton bud sticks represent
4,2%
of the total count

Balloons represent
1,4%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types



Seatown (UK040)

10 surveys

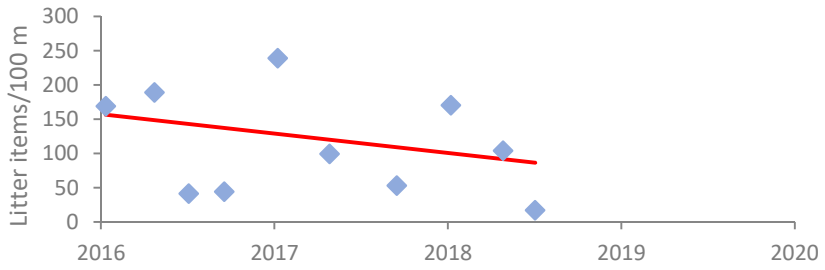
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 50.720301
Lat. -2.817478

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 102 items/100 m
Average total count: 113 items/100 m

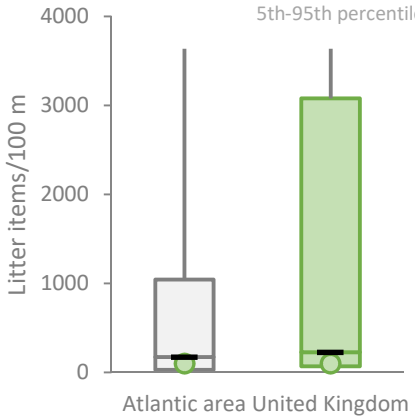


Non-significant decrease of the total abundance over four years

Slope is -28,3 items/100 m per year

p-value = 0,3

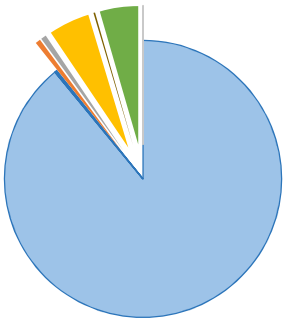
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 89,1%

PLASTIC (88,8%) + SANITARY* (0%) + MEDICAL* (0,3%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

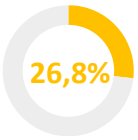
Single Use Plastics

Median = 11 items/100 m

of the total count

Fishery related litter items

Median = 13 items/100 m



of the total count

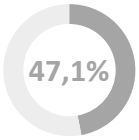
Plastic bags

Median = 0 item/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)

Median = 39 fragments/100 m



of the total count

Specific litter items and Top5

Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Plastic/polystyrene pieces 2.5-50 cm [46]* — 46,8%
#2 *Fishing line (angling) [35]* — 12,8%
#3 *Floats/Buoys [37]* — 4,2%
#4 *Caps/lids [15]* — 4,2%
#5 *String and cord (diameter less than 1 cm) [32]* — 3,5%

Polhawn (UK041)

10 surveys

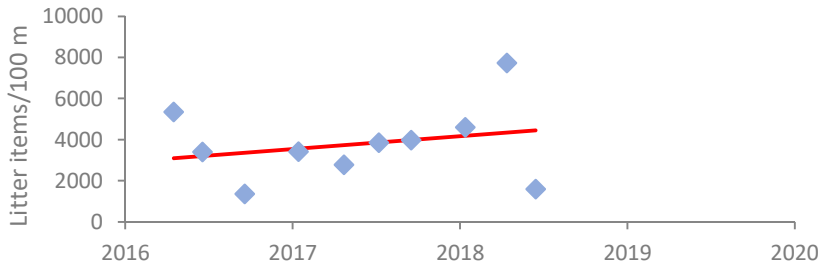
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 50.325261
Lat. -4.220191

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 3638 items/100 m
Average total count: 3806 items/100 m

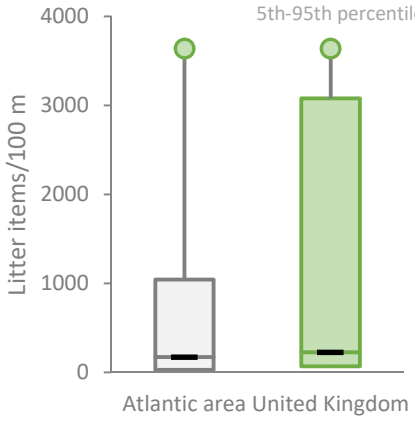


Non-significant increase of the total abundance over four years

Slope is 628 items/100 m per year

p-value = 0,242

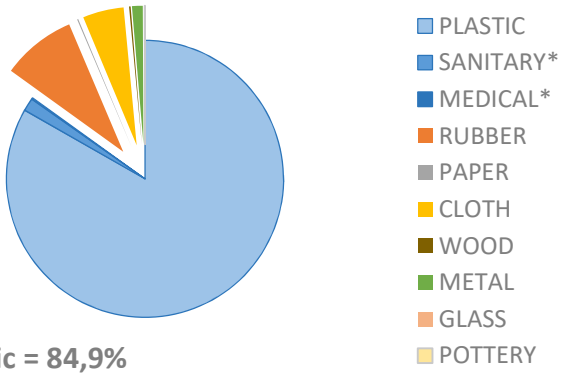
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 84,9%

PLASTIC (83,3%) + SANITARY* (1,5%) + MEDICAL* (0,2%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 781 items/100 m
20,5% of the total count

Fishery related litter items
Median = 663 items/100 m
17,7% of the total count

Plastic bags
Median = 22 items/100 m
1,9% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 1190 fragments/100 m
33,0% of the total count

Specific litter items and Top5

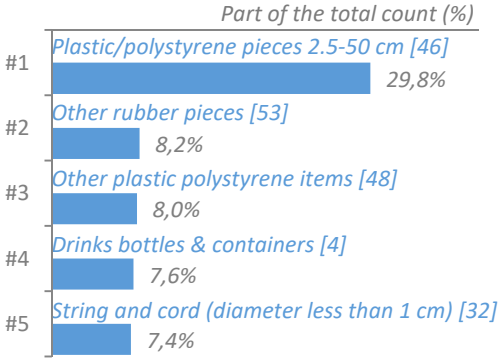
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
1,2%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



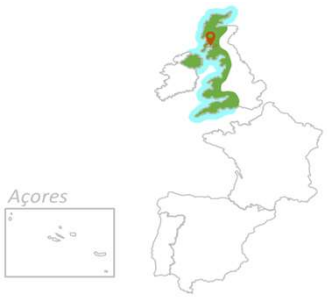
Lunderstone Bay (UK045)

14 surveys

Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

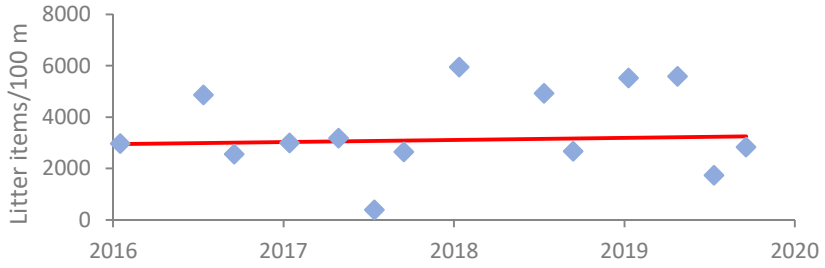
Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 55.930325
Lat. -4.876221



Abundance, trend and comparison at national and Atlantic area levels

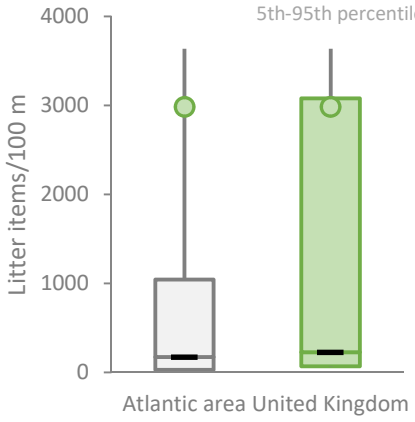
Median total count: 2983 items/100 m
Average total count: 3486 items/100 m



Non-significant increase of the total abundance over four years

Slope is 81,3 items/100 m per year
p-value = 0,334

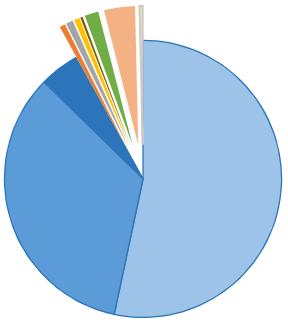
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



- PLASTIC
- SANITARY*
- MEDICAL*
- RUBBER
- PAPER
- CLOTH
- WOOD
- METAL
- GLASS
- POTTERY

Total plastic = 91,8%
PLASTIC (53,3%) + SANITARY* (33,9%) + MEDICAL* (4,6%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 1561 items/100 m
53,6% of the total count

Fishery related litter items
Median = 424 items/100 m
12,4% of the total count

Plastic bags
Median = 47 items/100 m
1,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 225 fragments/100 m
6,0% of the total count

Specific litter items and Top5

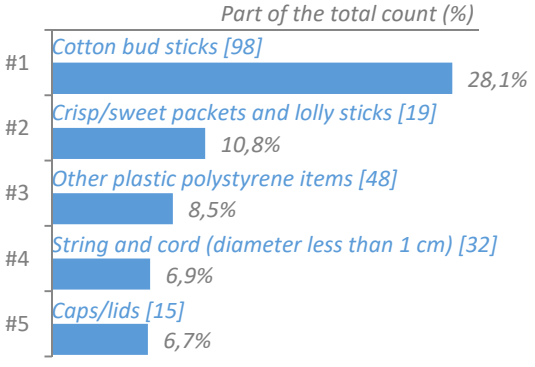
Cigarette filters represent
0,7%
of the total count

Cotton bud sticks represent
28,1%
of the total count

Balloons represent
0,5%
of the total count

Hunting cartridges represent
0,1%
of the total count

Top5 ranking of litter types



Formby (Freshfield) (UK048)

13 surveys

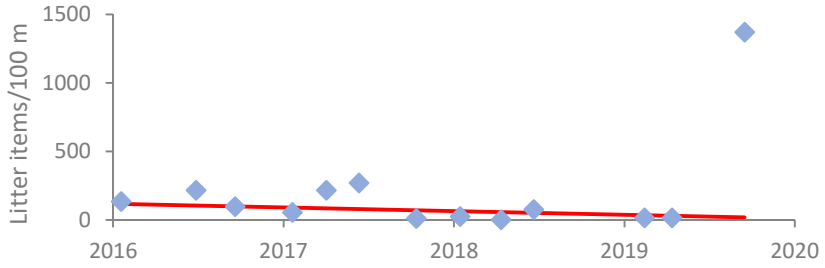
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 55.930325
Lat. -4.876221

Abundance, trend and comparison at national and Atlantic area levels

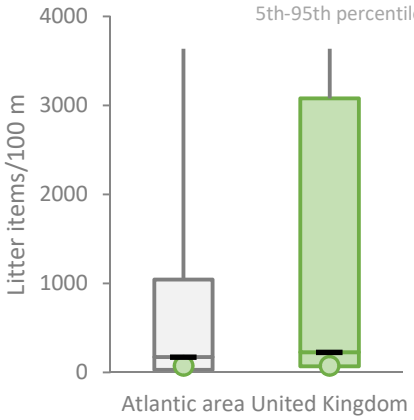
Median total count: 75 items/100 m
Average total count: 191 items/100 m



Non-significant decrease of the total abundance over four years

Slope is -27,2 items/100 m per year
p-value = 0,164

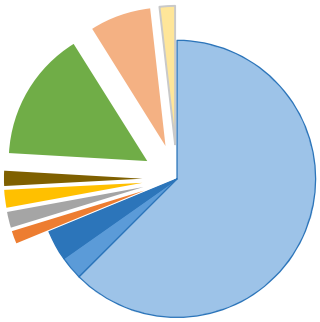
Box limits:
5th-95th percentiles



Average number of litter items of the site
Mean site average number of area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 68%
PLASTIC (61,8%) + SANITARY* (2,7%) + MEDICAL* (3,5%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 23 items/100 m
43,1% of the total count

Fishery related litter items
Median = 2 items/100 m
4,3% of the total count

Plastic bags
Median = 1 item/100 m
2,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 3 fragments/100 m
13,9% of the total count

Specific litter items and Top5

Cigarette filters represent **2,7%** of the total count

Cotton bud sticks represent **1,9%** of the total count

Balloons represent **1,2%** of the total count

Hunting cartridges represent **0,1%** of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Crisp/sweet packets and lolly sticks [19]* 17,3%
#2 *Plastic/polystyrene pieces 2.5-50 cm [46]* 12,0%
#3 *Caps/lids [15]* 7,6%
#4 *Other glass items [93]* 3,6%
#5 *Bottles [91]* 3,5%

Sein (FR006)

16 surveys

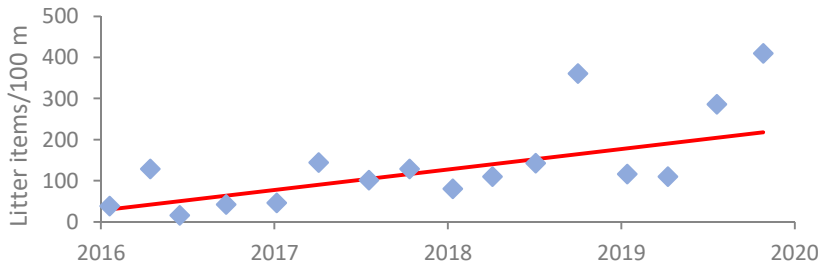
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.03361667
Lat. -4.857155556

Abundance, trend and comparison at national and Atlantic area levels

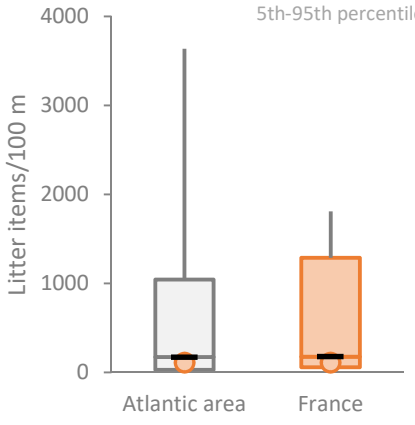
Median total count: 110 items/100 m
Average total count: 114 items/100 m



Significant increase of the total abundance over four years

Slope is 49,7 items/100 m per year
p-value = 0,0019

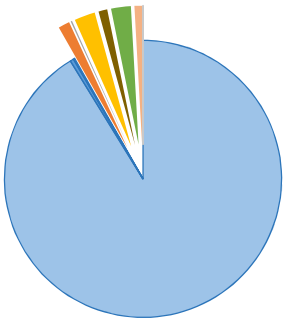
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 91,8%
PLASTIC (91,2%) + SANITARY* (0,4%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 24 items/100 m
20,6% of the total count

Fishery related litter items
Median = 30 items/100 m
42,8% of the total count

Plastic bags
Median = 0 item/100 m
0,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 19 fragments/100 m
18,9% of the total count

Specific litter items and Top5

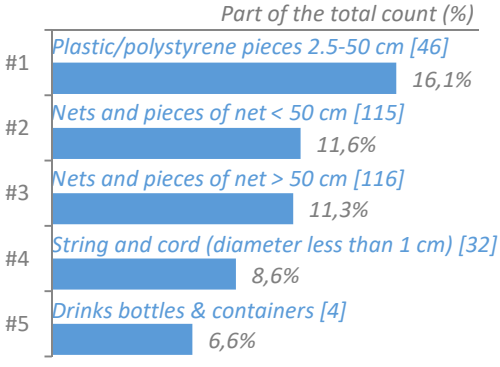
Cigarette filters represent **0,1%** of the total count

Cotton bud sticks represent **0,1%** of the total count

Balloons represent **0,1%** of the total count

Hunting cartridges represent **0,7%** of the total count

Top5 ranking of litter types



Koubou (FR007)

16 surveys

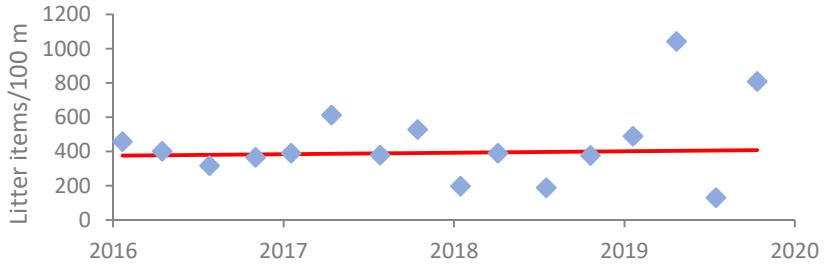
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.232225
Lat. -4.564961111

Abundance, trend and comparison at national and Atlantic area levels

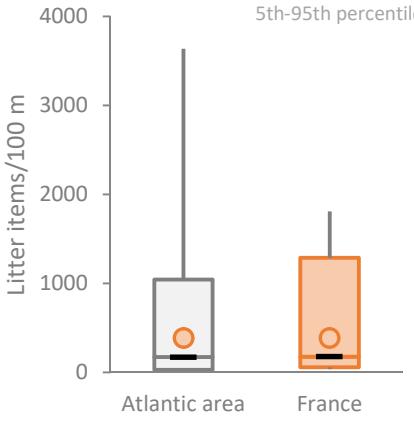
Median total count: 389 items/100 m
Average total count: 415 items/100 m



Non-significant increase of the total abundance over four years

Slope is 8,6 items/100 m per year
p-value = 0,446

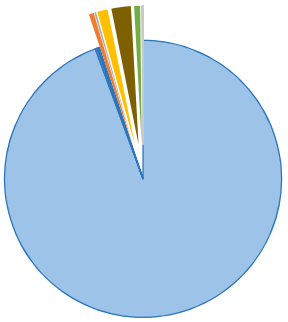
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

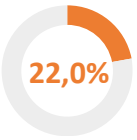
Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

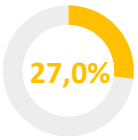
Total plastic = 94,9%
PLASTIC (94,4%) + SANITARY* (0,2%) + MEDICAL* (0,3%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 85 items/100 m



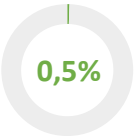
of the total count

Fishery related litter items
Median = 103 items/100 m



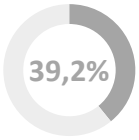
of the total count

Plastic bags
Median = 1 item/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 170 fragments/100 m



of the total count

Specific litter items and Top5

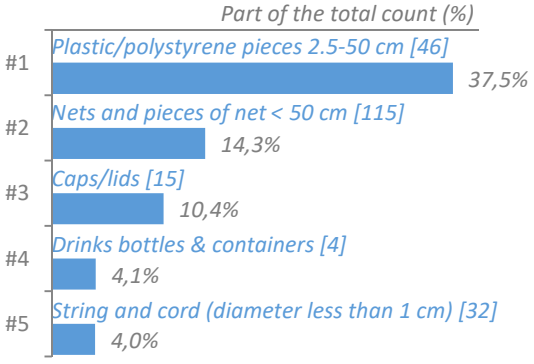
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
0,1%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
1,0%
of the total count

Top5 ranking of litter types



Kerizella (FR008)

16 surveys

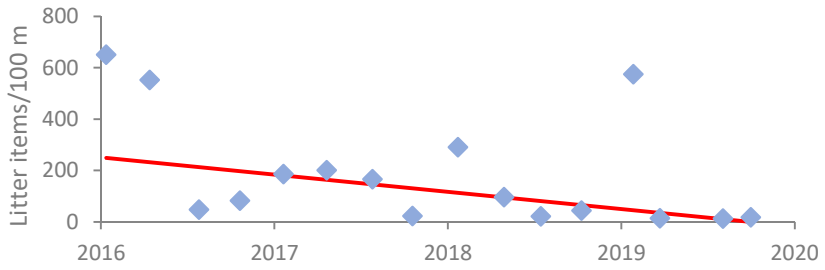
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.49600278
Lat. -4.777275

Abundance, trend and comparison at national and Atlantic area levels

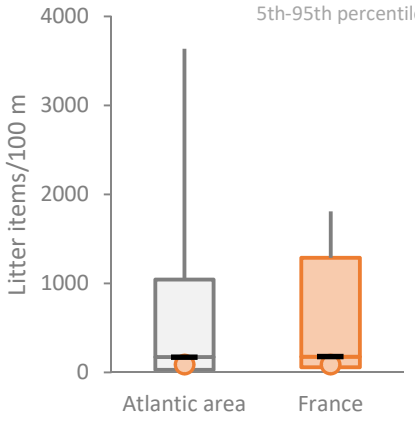
Median total count: 90 items/100 m
Average total count: 186 items/100 m



Significant decrease of the total abundance over four years

Slope is -67,1 items/100 m per year
p-value = 0,0057

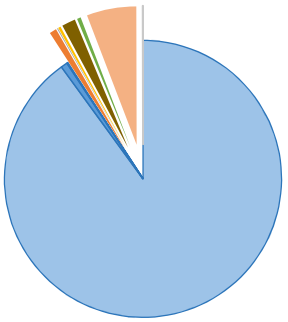
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 90,9%
PLASTIC (90%) + SANITARY* (0,8%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 9 items/100 m
20,3% of the total count

Fishery related litter items
Median = 8 items/100 m
21,6% of the total count

Plastic bags
Median = 0 item/100 m
0,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 26 fragments/100 m
37,2% of the total count

Specific litter items and Top5

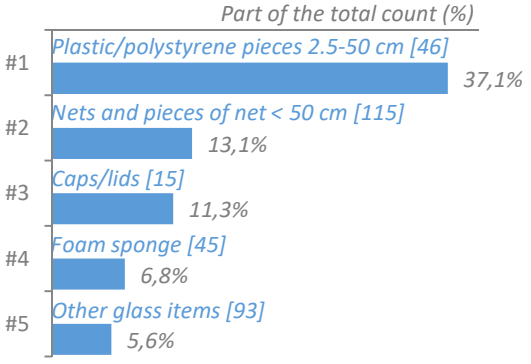
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
0,7%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
1,9%
of the total count

Top5 ranking of litter types



Larmor Plougastel (FR011)

16 surveys

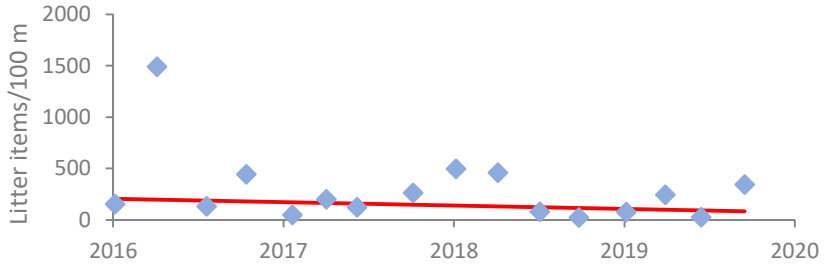
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.33548056
Lat. -4.448097222

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 178 items/100 m
Average total count: 287 items/100 m

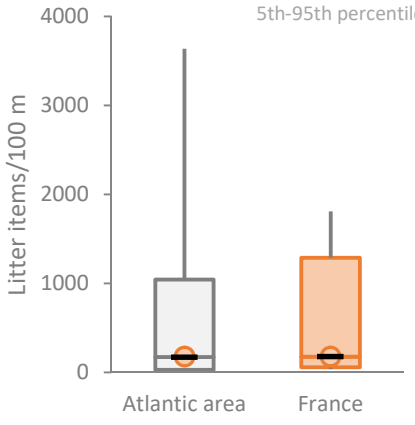


Non-significant decrease of the total abundance over four years

Slope is -32,7 items/100 m per year

p-value = 0,175

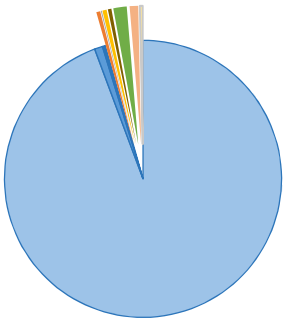
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 95,6%

PLASTIC (94,3%) + SANITARY* (1%) + MEDICAL* (0,3%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics

Median = 64 items/100 m

of the total count

Fishery related litter items

Median = 55 items/100 m

of the total count

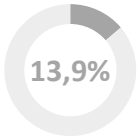
Plastic bags

Median = 0 item/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)

Median = 22 fragments/100 m



of the total count

Specific litter items and Top5

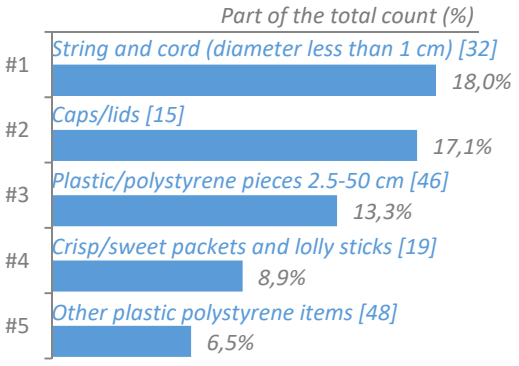
Cigarette filters represent
0,1%
of the total count

Cotton bud sticks represent
0,2%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
1,8%
of the total count

Top5 ranking of litter types



Trielen (FR012)

16 surveys

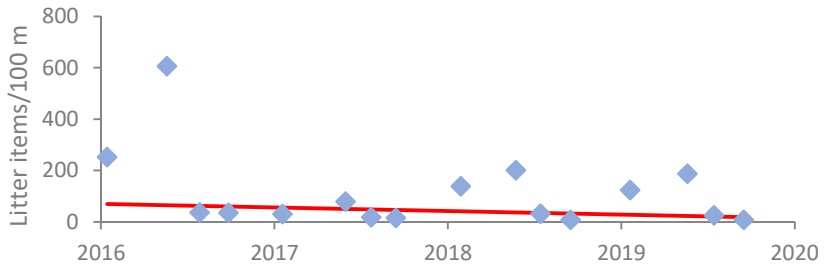
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.37464444
Lat. -4.93625

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 36 items/100 m
Average total count: 112 items/100 m

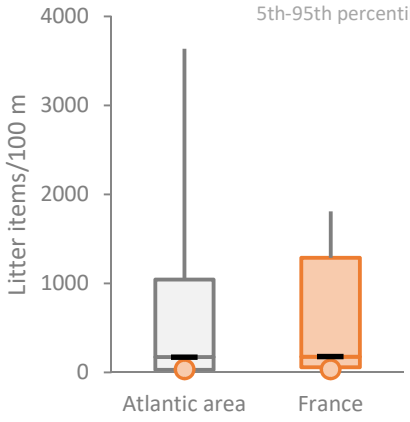


Significant decrease of the total abundance over four years

Slope is -13,9 items/100 m per year

p-value = 0,0477

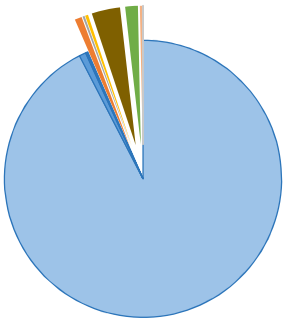
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 93,4%

PLASTIC (92,4%) + SANITARY* (0,8%) + MEDICAL* (0,3%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 14 items/100 m
30,4% of the total count

Fishery related litter items
Median = 15 items/100 m
20,4% of the total count

Plastic bags
Median = 0 item/100 m
0,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 7 fragments/100 m
27,0% of the total count

Specific litter items and Top5

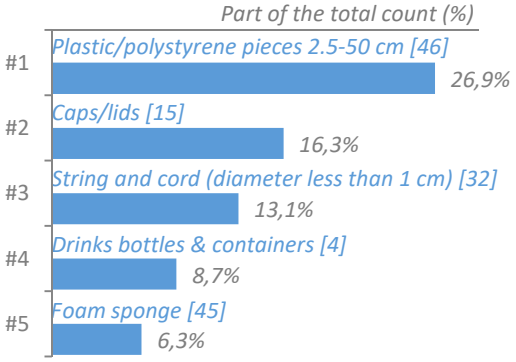
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
0,6%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
2,0%
of the total count

Top5 ranking of litter types



La Barre (FR017)

16 surveys

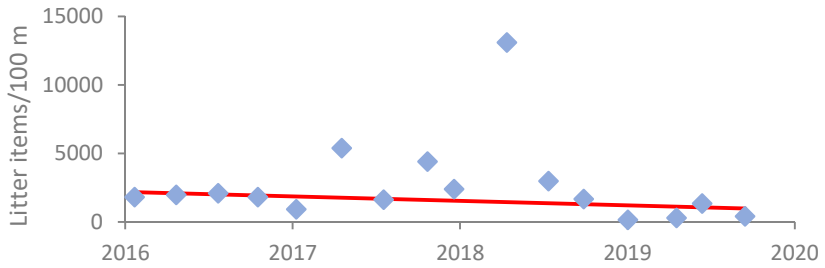
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.52856667
Lat. -1.523491667

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 1808 items/100 m
Average total count: 2641 items/100 m

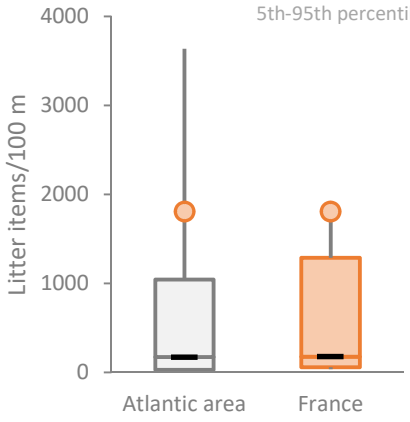


Non-significant decrease of the total abundance over four years

Slope is -326 items/100 m per year

p-value = 0,0975

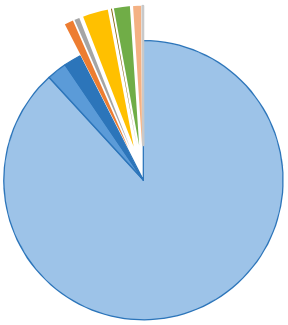
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 92,5%

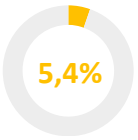
PLASTIC (88,2%) + SANITARY* (2,4%) + MEDICAL* (1,9%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 674 items/100 m

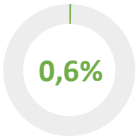
of the total count

Fishery related litter items
Median = 107 items/100 m



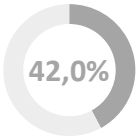
of the total count

Plastic bags
Median = 3 items/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 748 fragments/100 m



of the total count

Specific litter items and Top5

Cigarette filters represent
4,8%
of the total count

Cotton bud sticks represent
1,5%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,4%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Plastic/polystyrene pieces 2.5-50 cm [46]* — *41,9%*
#2 *Food incl. Fast food containers [6]* — *8,3%*
#3 *Drinks bottles & containers [4]* — *7,2%*
#4 *Cigarette butts [64]* — *4,8%*
#5 *Caps/lids [15]* — *4,0%*

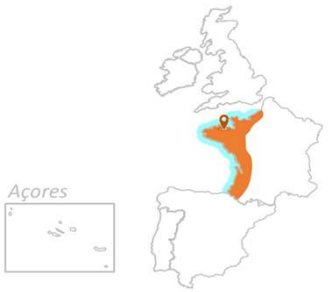
La Grandville (FR019)

14 surveys

Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

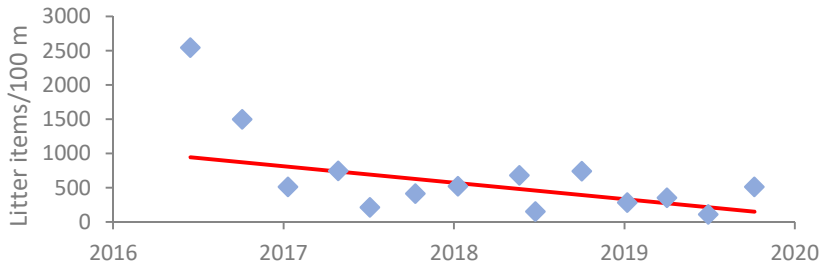
Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.52352222
Lat. -2.639791667



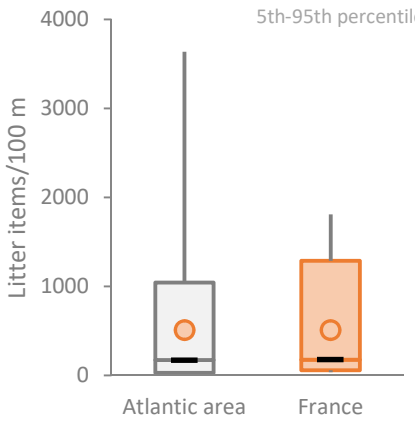
Abundance, trend and comparison at national and Atlantic area levels

Median total count: 509 items/100 m
Average total count: 660 items/100 m



Significant decrease of the total abundance over four years
Slope is -240 items/100 m per year
p-value = 0,0178

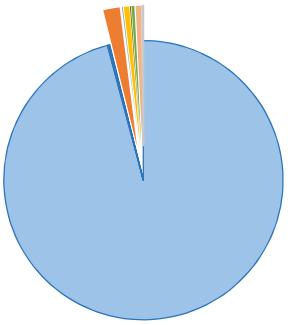
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 96,1%
PLASTIC (95,9%) + SANITARY* (0,2%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 22 items/100 m
9,3% of the total count

Fishery related litter items
Median = 278 items/100 m
66,8% of the total count

Plastic bags
Median = 2 items/100 m
0,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 31 fragments/100 m
10,9% of the total count

Specific litter items and Top5

Cigarette filters represent
0,1%
of the total count

Cotton bud sticks represent
0,1%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Bags/nets from oyster/mussel culture [28]* — 48,6%
#2 *Plastic/polystyrene pieces 2.5-50 cm [46]* — 10,7%
#3 *String and cord (diameter less than 1 cm) [32]* — 7,7%
#4 *Other plastic polystyrene items [48]* — 6,5%
#5 *Nets and pieces of net < 50 cm [115]* — 4,0%

Le Valais (FR020)

14 surveys

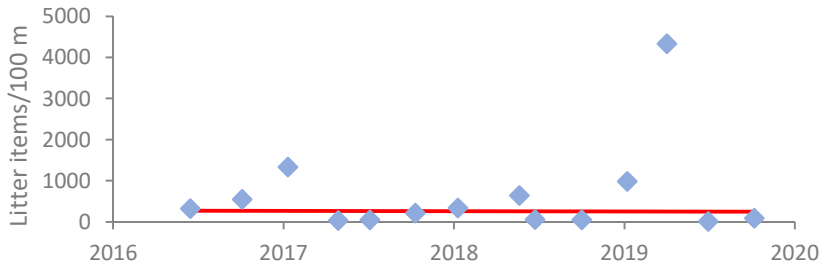
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 48.52411389
Lat. -2.716433333

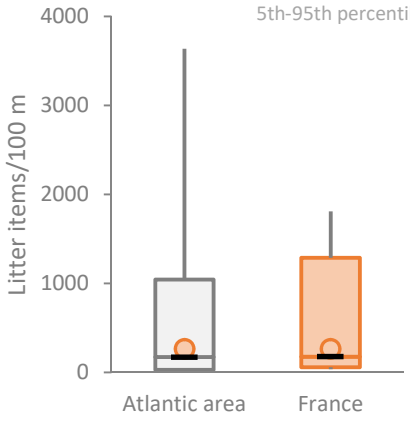
Abundance, trend and comparison at national and Atlantic area levels

Median total count: 266 items/100 m
Average total count: 642 items/100 m



Non-significant decrease of the total abundance over four years
Slope is -8,3 items/100 m per year
p-value = 0,457

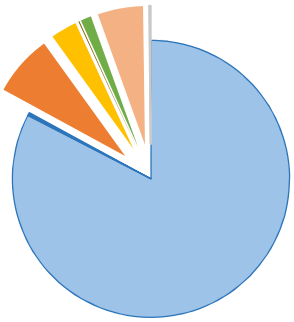
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 82,9%
PLASTIC (82,6%) + SANITARY* (0,1%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 42 items/100 m
7,6% of the total count

Fishery related litter items
Median = 121 items/100 m
46,2% of the total count

Plastic bags
Median = 5 items/100 m
0,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 22 fragments/100 m
26,8% of the total count

Specific litter items and Top5

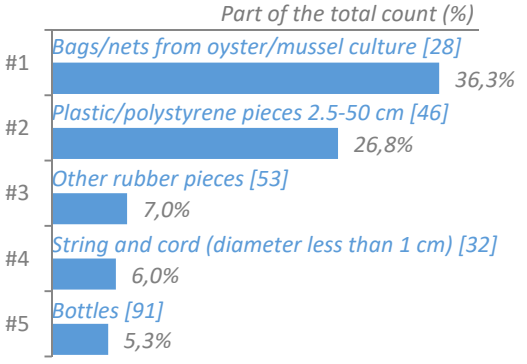
Cigarette filters represent
0,2%
of the total count

Cotton bud sticks represent
0,1%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,1%
of the total count

Top5 ranking of litter types



Merville-Franceville (FR021)

13 surveys

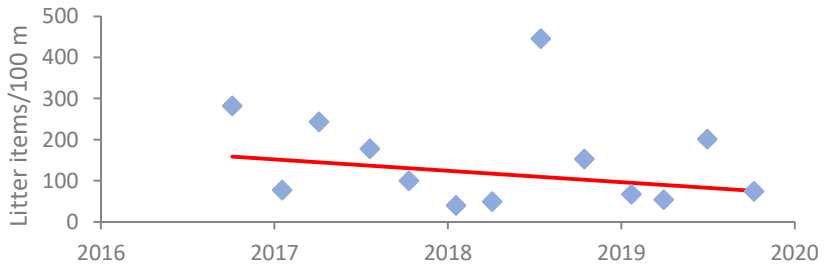
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 49.28656389
Lat. -0.213863889

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 100 items/100 m
Average total count: 151 items/100 m

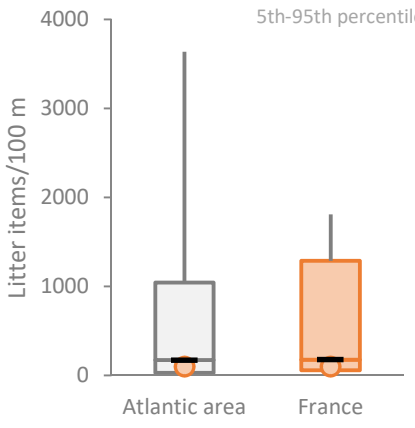


Non-significant decrease of the total abundance over four years

Slope is -27,6 items/100 m per year

p-value = 0,184

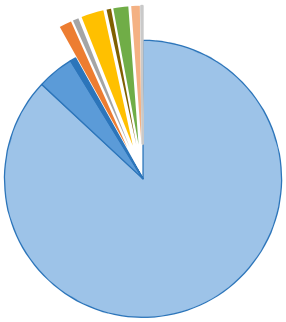
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 91,7%

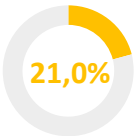
PLASTIC (86,8%) + SANITARY* (4,3%) + MEDICAL* (0,7%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 38 items/100 m

of the total count

Fishery related litter items
Median = 26 items/100 m

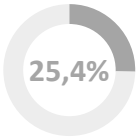


of the total count

Plastic bags
Median = 2 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 11 fragments/100 m



of the total count

Specific litter items and Top5

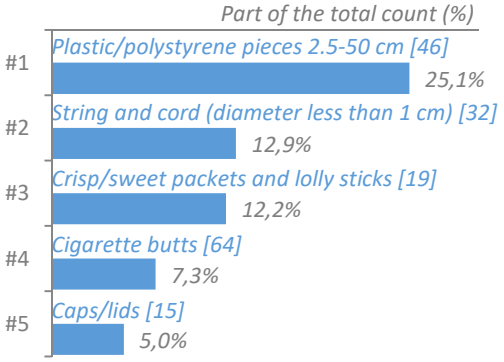
Cigarette filters represent
7,3%
of the total count

Cotton bud sticks represent
0,6%
of the total count

Balloons represent
0,8%
of the total count

Hunting cartridges represent
1,4%
of the total count

Top5 ranking of litter types



A Lanzada (ES001)

16 surveys

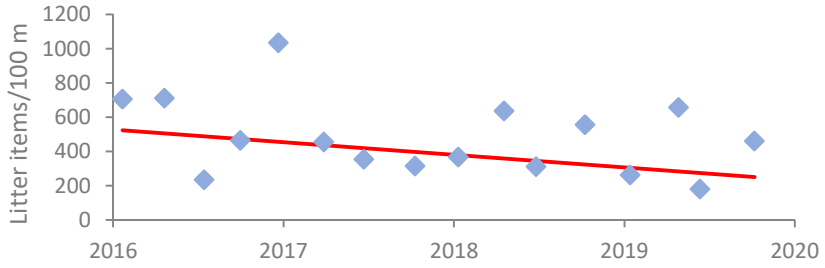
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 42.4515
Lat. -8.878583333

Abundance, trend and comparison at national and Atlantic area levels

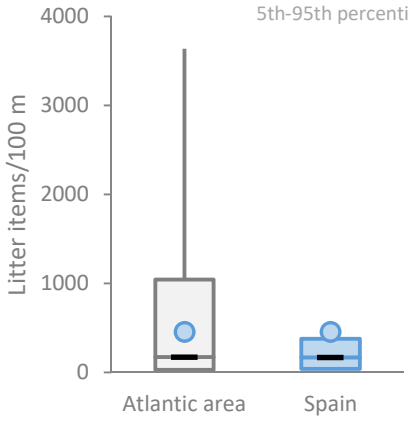
Median total count: 458 items/100 m
Average total count: 481 items/100 m



Non-significant decrease of the total abundance over four years

Slope is -73,5 items/100 m per year
p-value = 0,0975

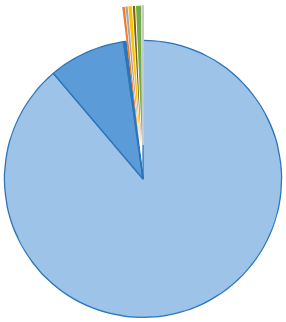
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 98%
PLASTIC (88,8%) + SANITARY* (9%) + MEDICAL* (0,3%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 149 items/100 m
40,8% of the total count

Fishery related litter items
Median = 177 items/100 m
37,2% of the total count

Plastic bags
Median = 1 item/100 m
0,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 46 fragments/100 m
14,8% of the total count

Specific litter items and Top5

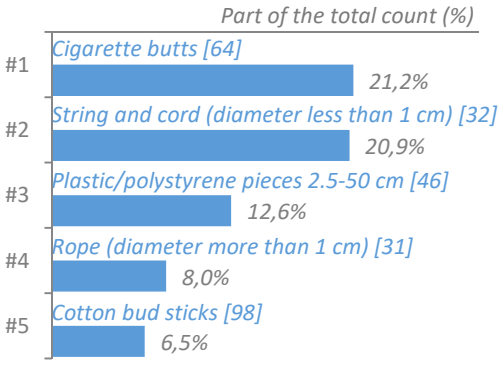
Cigarette filters represent
21,2%
of the total count

Cotton bud sticks represent
6,5%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



Baldaio (ES002)

16 surveys

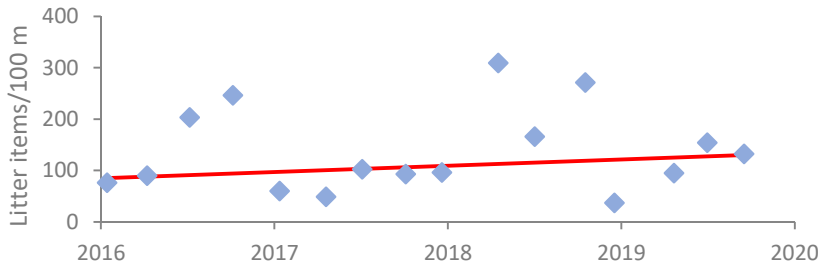
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.29778333
Lat. -8.68176667

Abundance, trend and comparison at national and Atlantic area levels

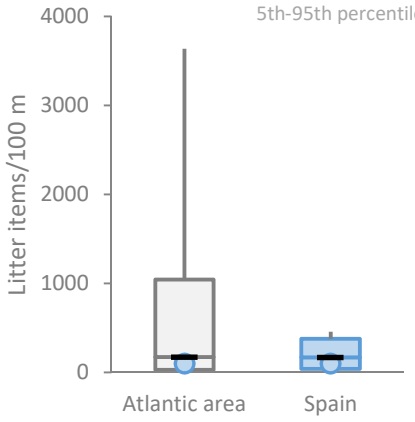
Median total count: 99 items/100 m
Average total count: 136 items/100 m



Non-significant increase of the total abundance over four years

Slope is 12,2 items/100 m per year
p-value = 0,225

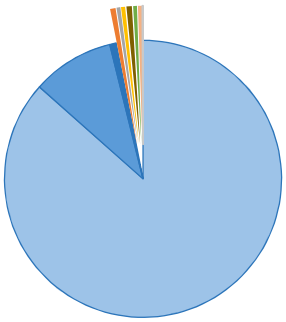
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 96,9%
PLASTIC (86,6%) + SANITARY* (9,6%) + MEDICAL* (0,7%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 31 items/100 m
32,6% of the total count

Fishery related litter items
Median = 53 items/100 m
44,0% of the total count

Plastic bags
Median = 2 items/100 m
2,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 8 fragments/100 m
9,8% of the total count

Specific litter items and Top5

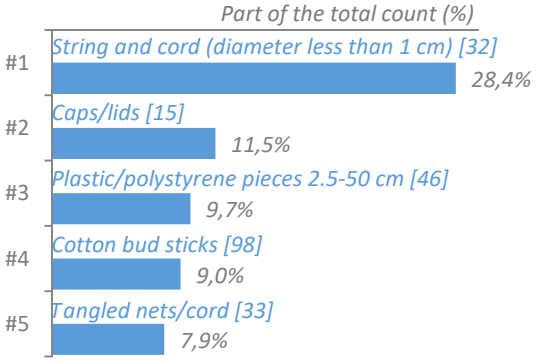
Cigarette filters represent
3,0%
of the total count

Cotton bud sticks represent
9,0%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



Valdevaqueros beach (ES003)

16 surveys

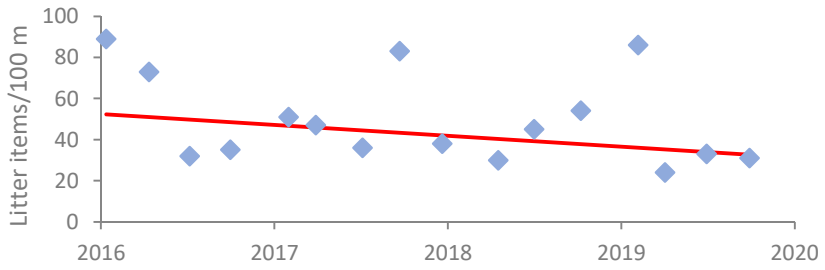
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 36.05802778
Lat. -5.670666667

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 42 items/100 m
Average total count: 49 items/100 m

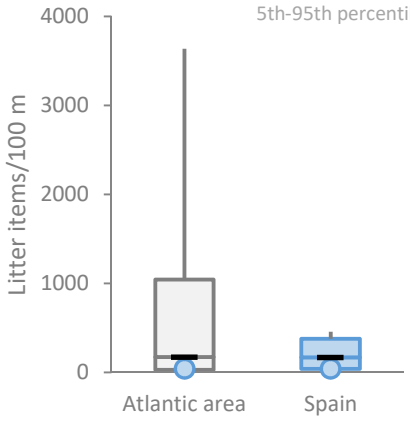


Non-significant decrease of the total abundance over four years

Slope is -5,3 items/100 m per year

p-value = 0,0975

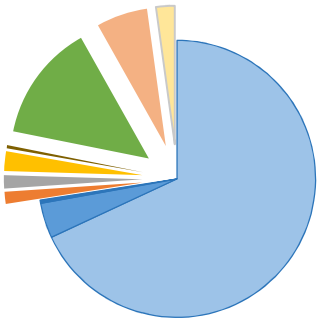
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 72,2%

PLASTIC (67,7%) + SANITARY* (4,1%) + MEDICAL* (0,4%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 13 items/100 m
31,9% of the total count

Fishery related litter items
Median = 8 items/100 m
14,0% of the total count

Plastic bags
Median = 2 items/100 m
3,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 6 fragments/100 m
14,5% of the total count

Specific litter items and Top5

Cigarette filters represent **3,3%** of the total count

Cotton bud sticks represent **1,4%** of the total count

Balloons represent **0,8%** of the total count

Hunting cartridges represent **0,0%** of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Plastic/polystyrene pieces 2.5-50 cm [46]* 12,8%
#2 *Drinks bottles & containers [4]* 6,7%
#3 *Bottles [91]* 5,7%
#4 *Caps/lids [15]* 5,5%
#5 *Drink cans [78]* 4,6%

O Rostro (ES004)

16 surveys

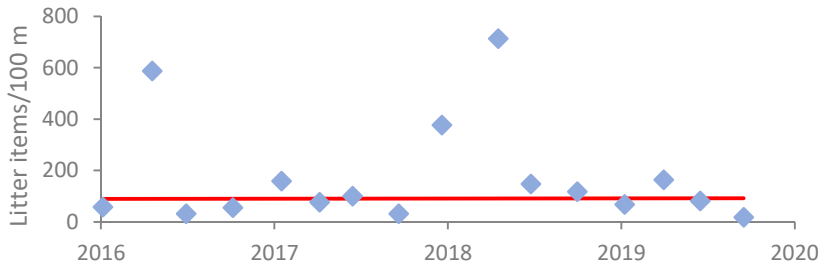
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 42.96203333
Lat. -9.269016667

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 91 items/100 m
Average total count: 174 items/100 m

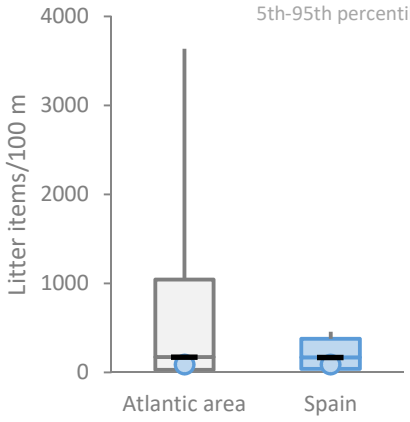


Non-significant increase of the total abundance over four years

Slope is 0,7 items/100 m per year

p-value = 0,518

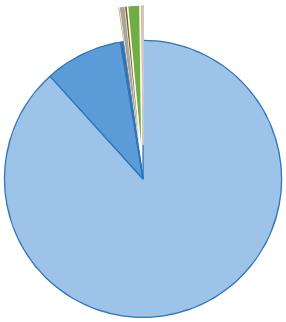
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



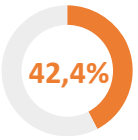
PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 97,7%

PLASTIC (88,3%) + SANITARY* (9,1%) + MEDICAL* (0,3%)

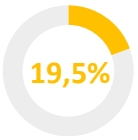
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 36 items/100 m



of the total count

Fishery related litter items
Median = 23 items/100 m

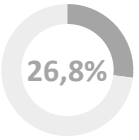


of the total count

Plastic bags
Median = 3 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 17 fragments/100 m



of the total count

Specific litter items and Top5

Cigarette filters represent
2,1%
of the total count

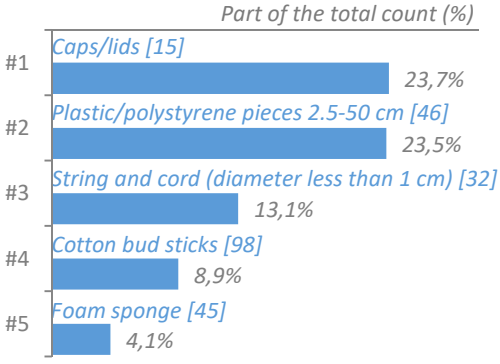
Cotton bud sticks represent
8,9%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
1,0%
of the total count

Top5 ranking of litter types

Part of the total count (%)



La Vega (ES005)

16 surveys

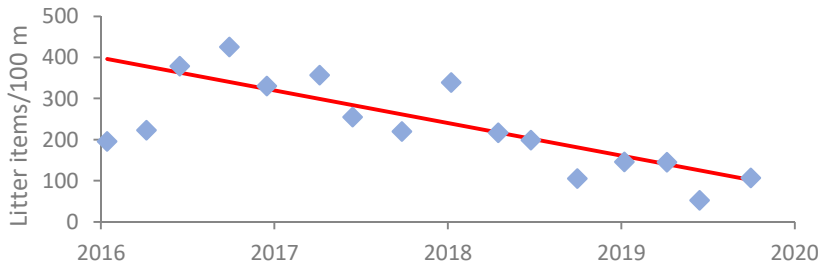
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.4806
Lat. -5.136194444

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 219 items/100 m
Average total count: 231 items/100 m

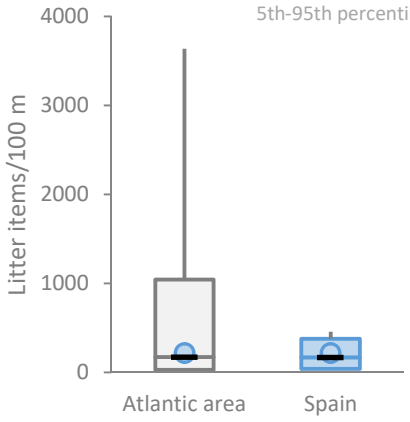


Significant decrease of the total abundance over four years

Slope is -79,1 items/100 m per year

p-value = 0,0006

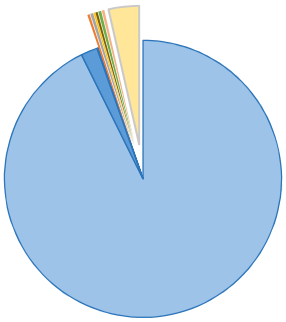
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 94,7%

PLASTIC (92,7%) + SANITARY* (1,9%) + MEDICAL* (0,1%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 77 items/100 m
33,8% of the total count

Fishery related litter items
Median = 50 items/100 m
23,3% of the total count

Plastic bags
Median = 3 items/100 m
1,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 72 fragments/100 m
33,2% of the total count

Specific litter items and Top5

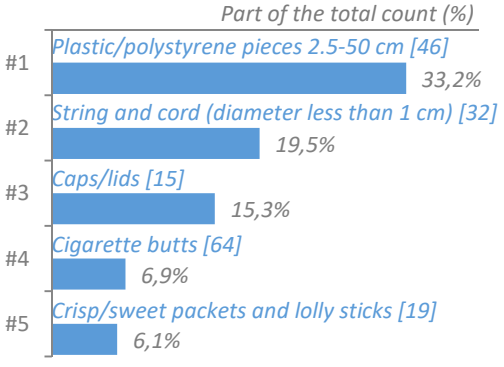
Cigarette filters represent
6,9%
of the total count

Cotton bud sticks represent
1,5%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,4%
of the total count

Top5 ranking of litter types



Agiti (ES007)

16 surveys

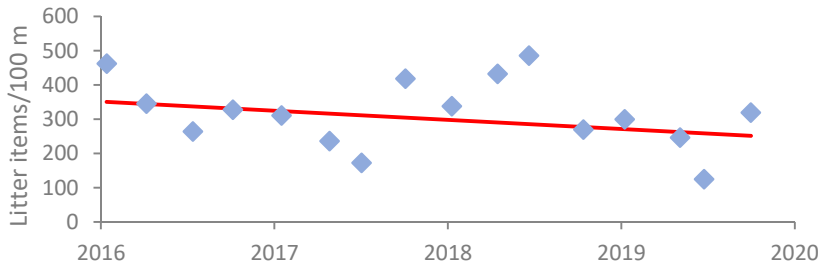
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.30748056
Lat. -2.072938889

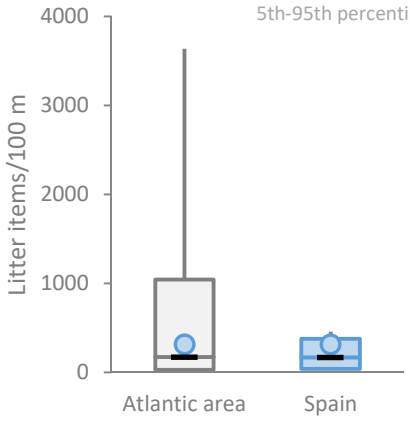
Abundance, trend and comparison at national and Atlantic area levels

Median total count: 315 items/100 m
Average total count: 315 items/100 m



Non-significant decrease of the total abundance over four years
Slope is -26,7 items/100 m per year
p-value = 0,153

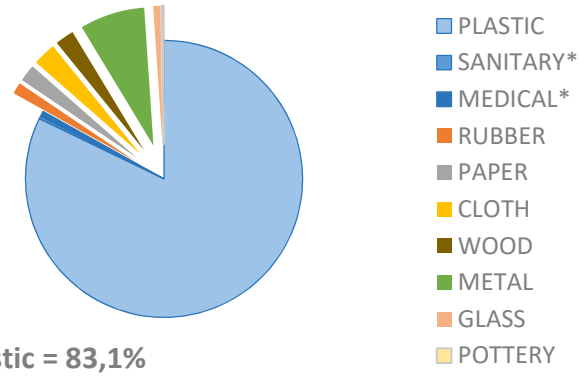
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 83,1%
PLASTIC (82,2%) + SANITARY* (0,3%) + MEDICAL* (0,7%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 127 items/100 m
42,3% of the total count

Fishery related litter items
Median = 20 items/100 m
7,8% of the total count

Plastic bags
Median = 2 items/100 m
0,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 36 fragments/100 m
14,1% of the total count

Specific litter items and Top5

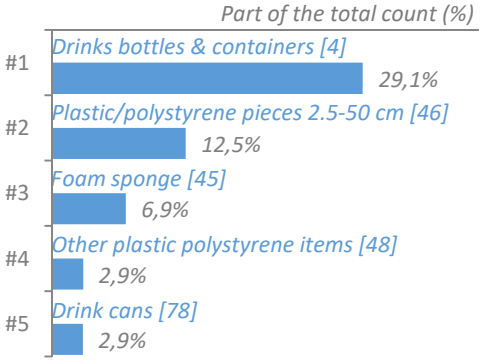
Cigarette filters represent
0,2%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,1%
of the total count

Top5 ranking of litter types



Menacoz (ES008)

16 surveys

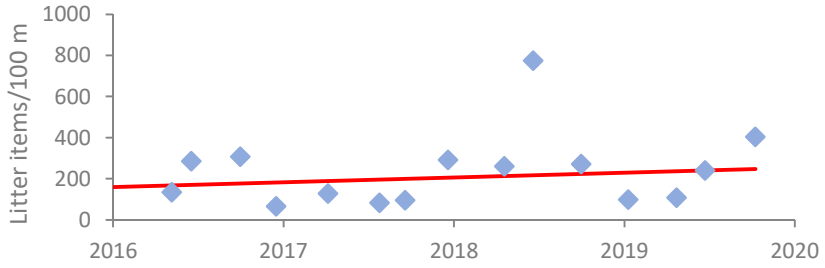
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.39523056
Lat. -2.985466667

Abundance, trend and comparison at national and Atlantic area levels

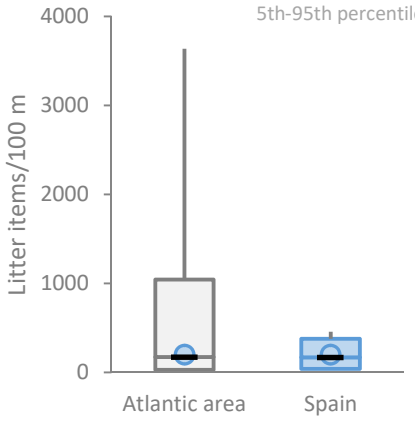
Median total count: 200 items/100 m
Average total count: 232 items/100 m



Non-significant increase of the total abundance over four years

Slope is 23,5 items/100 m per year
p-value = 0,253

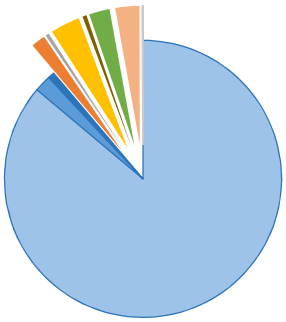
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 88,8%
PLASTIC (86,1%) + SANITARY* (1,9%) + MEDICAL* (0,8%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 36 items/100 m
26,1% of the total count

Fishery related litter items
Median = 12 items/100 m
15,3% of the total count

Plastic bags
Median = 2 items/100 m
1,1% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 57 fragments/100 m
41,6% of the total count

Specific litter items and Top5

Cigarette filters represent
2,2%
of the total count

Cotton bud sticks represent
1,1%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,4%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Plastic/polystyrene pieces 2.5-50 cm [46]* — *41,5%*
#2 *String and cord (diameter less than 1 cm) [32]* — *10,5%*
#3 *Caps/lids [15]* — *8,6%*
#4 *Drinks bottles & containers [4]* — *3,7%*
#5 *Crisp/sweet packets and lolly sticks [19]* — *2,9%*

Covas (ES010)

16 surveys

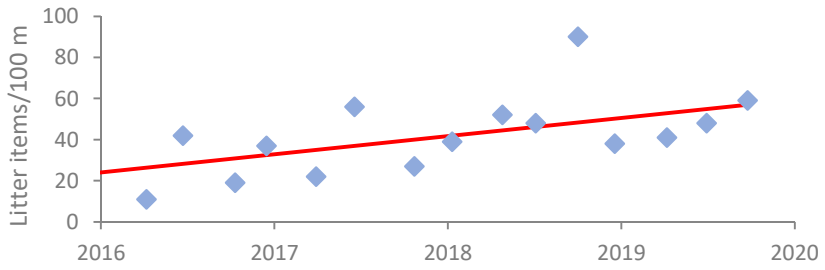
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.67258333
Lat. -7.611527778

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 42 items/100 m
Average total count: 42 items/100 m

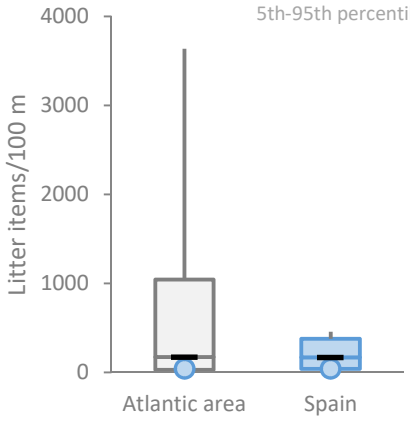


Significant increase of the total abundance over four years

Slope is 8,8 items/100 m per year

p-value = 0,0171

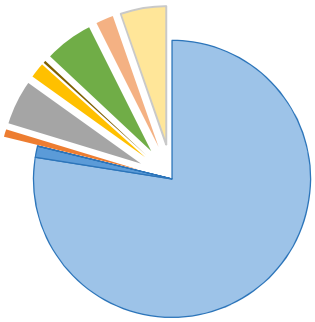
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



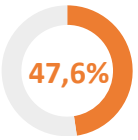
PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 78,7%

PLASTIC (77,4%) + SANITARY* (1,3%) + MEDICAL* (0%)

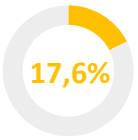
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 17 items/100 m



of the total count

Fishery related litter items
Median = 6 items/100 m

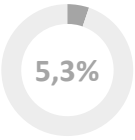


of the total count

Plastic bags
Median = 5 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 1 fragment/100 m



of the total count

Specific litter items and Top5

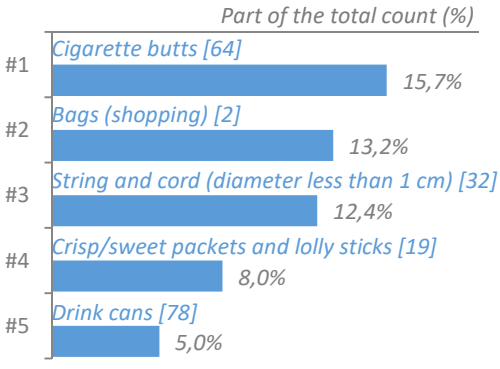
Cigarette filters represent
15,7%
of the total count

Cotton bud sticks represent
0,4%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,0%
of the total count

Top5 ranking of litter types



Castilla (ES011)

15 surveys

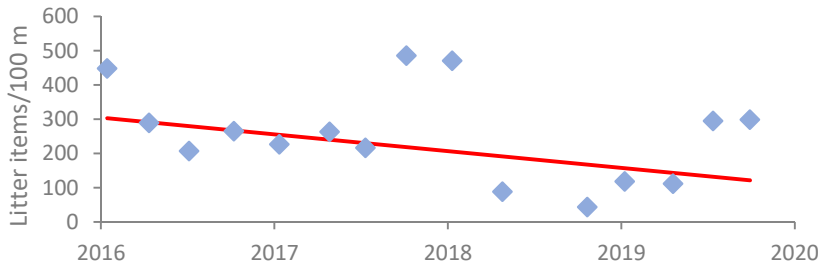
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 37.07677778
Lat. -6.702

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 263 items/100 m
Average total count: 255 items/100 m

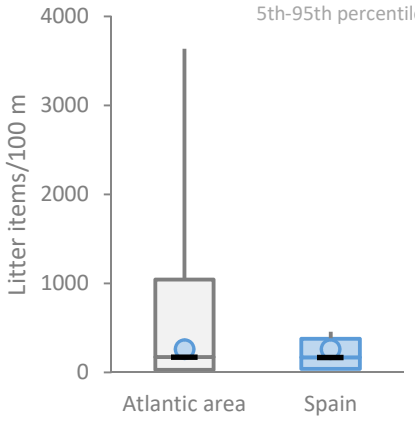


Non-significant decrease of the total abundance over four years

Slope is -49 items/100 m per year

p-value = 0,218

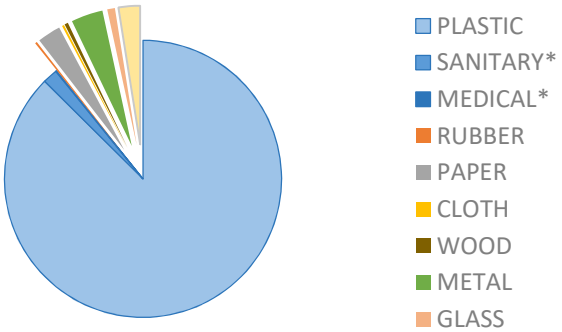
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 89,3%
PLASTIC (87,4%) + SANITARY* (1,7%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 103 items/100 m
41,2% of the total count

Fishery related litter items
Median = 85 items/100 m
34,3% of the total count

Plastic bags
Median = 12 items/100 m
3,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 3 fragments/100 m
4,7% of the total count

Specific litter items and Top5

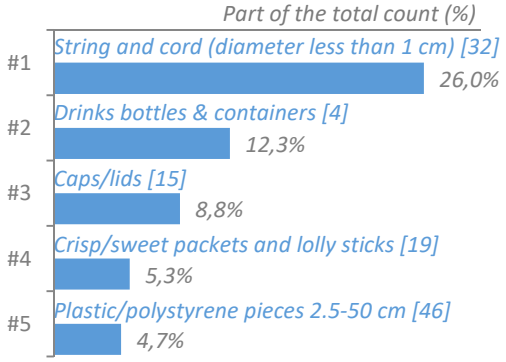
Cigarette filters represent
0,2%
of the total count

Cotton bud sticks represent
1,2%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



Castilnovo (ES012)

14 surveys

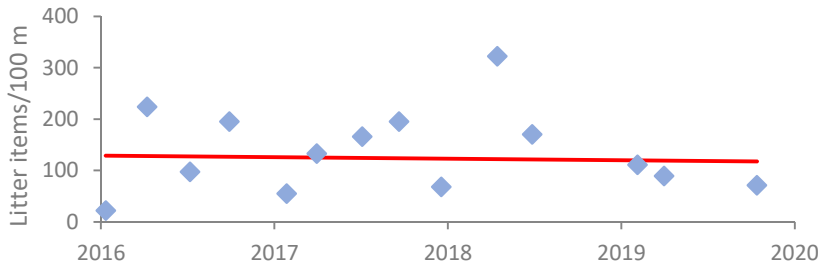
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 36.25666667
Lat. -6.083888889

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 122 items/100 m
Average total count: 137 items/100 m

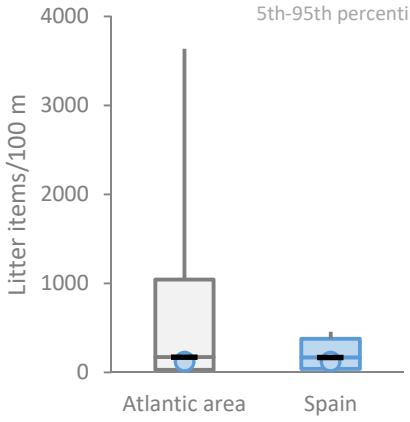


Non-significant decrease of the total abundance over four years

Slope is -2,9 items/100 m per year

p-value = 0,456

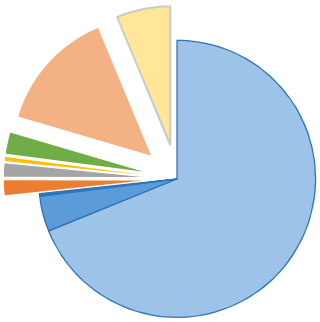
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 73,1%

PLASTIC (68,7%) + SANITARY* (4,1%) + MEDICAL* (0,3%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 40 items/100 m
34,8% of the total count

Fishery related litter items
Median = 34 items/100 m
28,7% of the total count

Plastic bags
Median = 4 items/100 m
8,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 7 fragments/100 m
5,4% of the total count

Specific litter items and Top5

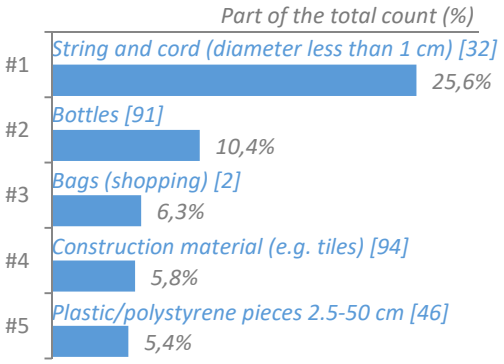
Cigarette filters represent
3,3%
of the total count

Cotton bud sticks represent
0,8%
of the total count

Balloons represent
1,4%
of the total count

Hunting cartridges represent
0,1%
of the total count

Top5 ranking of litter types



Oyambre (ES013)

16 surveys

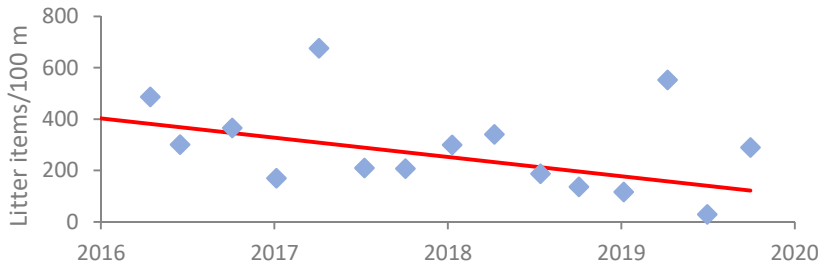
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 43.38961111
Lat. -4.328944444

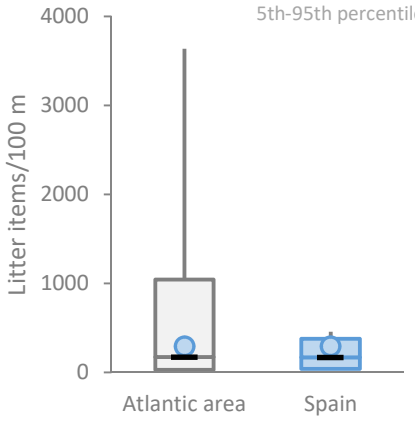
Abundance, trend and comparison at national and Atlantic area levels

Median total count: 294 items/100 m
Average total count: 316 items/100 m



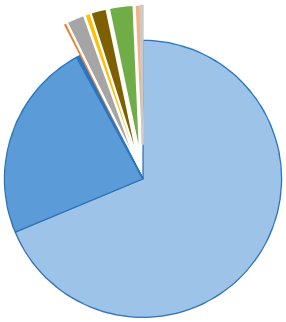
Significant decrease of the total abundance over four years
Slope is -74,9 items/100 m per year
p-value = 0,0099

Box limits:
5th-95th percentiles



Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 92,2%
PLASTIC (68,5%) + SANITARY* (23,3%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 183 items/100 m
60,1% of the total count

Fishery related litter items
Median = 44 items/100 m
18,0% of the total count

Plastic bags
Median = 6 items/100 m
3,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 20 fragments/100 m
7,0% of the total count

Specific litter items and Top5

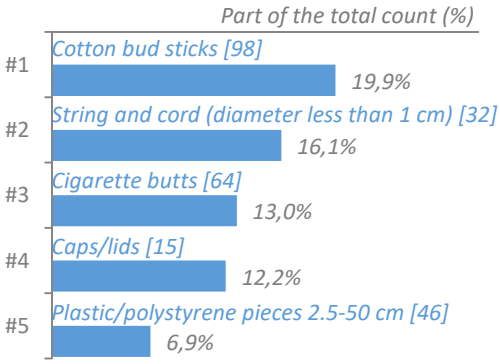
Cigarette filters represent
13,0%
of the total count

Cotton bud sticks represent
19,9%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types



Rodas (ES014)

16 surveys

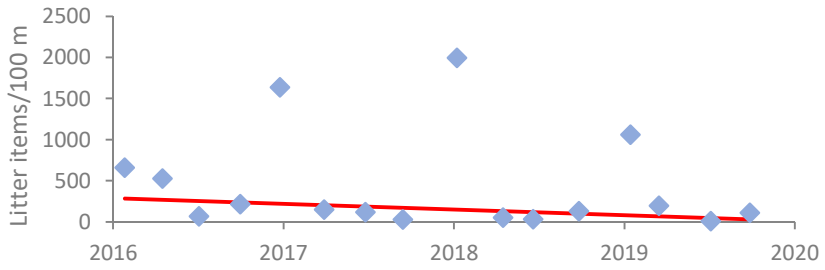
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 42.2197
Lat. -8.9017

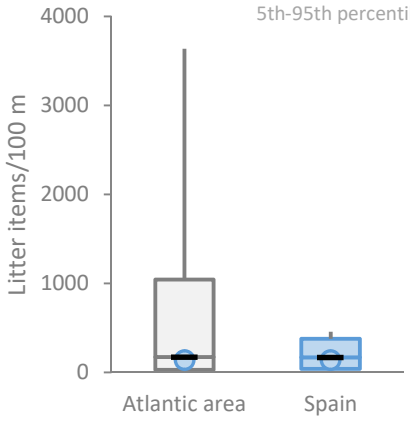
Abundance, trend and comparison at national and Atlantic area levels

Median total count: 139 items/100 m
Average total count: 436 items/100 m



Non-significant decrease of the total abundance over four years
Slope is -68,9 items/100 m per year
p-value = 0,0826

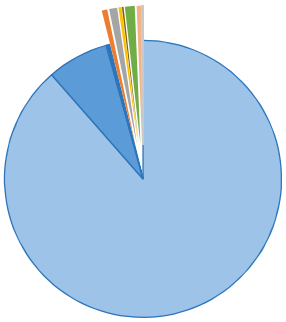
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 96,1%
PLASTIC (88,5%) + SANITARY* (7,2%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 42 items/100 m
26,0% of the total count

Fishery related litter items
Median = 36 items/100 m
42,3% of the total count

Plastic bags
Median = 1 item/100 m
0,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 12 fragments/100 m
16,4% of the total count

Specific litter items and Top5

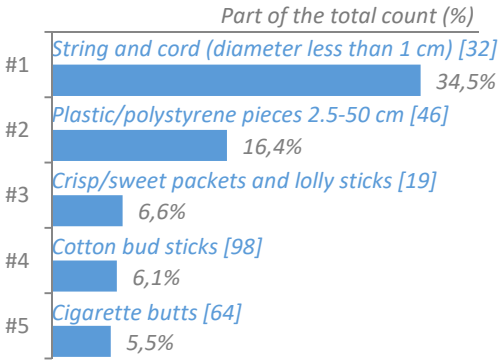
Cigarette filters represent
5,5%
of the total count

Cotton bud sticks represent
6,1%
of the total count

Balloons represent
0,4%
of the total count

Hunting cartridges represent
0,1%
of the total count

Top5 ranking of litter types



Praia da Barra (PT001)

15 surveys

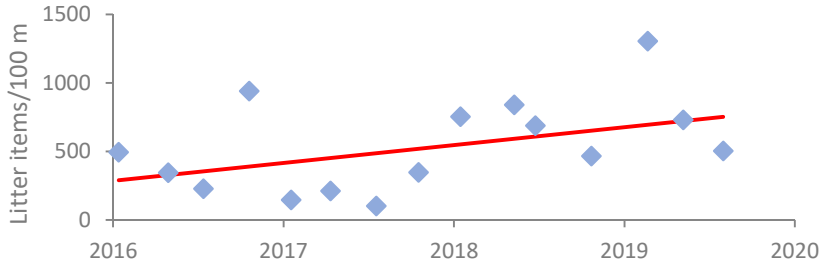
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 40.64024167
Lat. -8.748738889

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 493 items/100 m
Average total count: 539 items/100 m

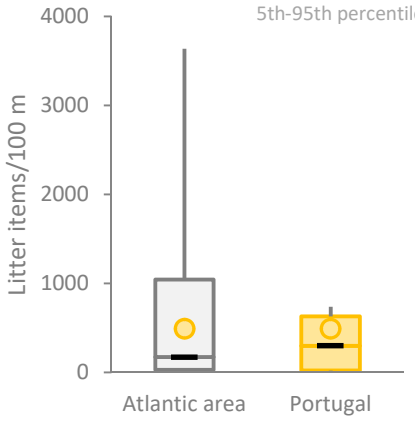


Non-significant increase of the total abundance over four years

Slope is 130 items/100 m per year

p-value = 0,0697

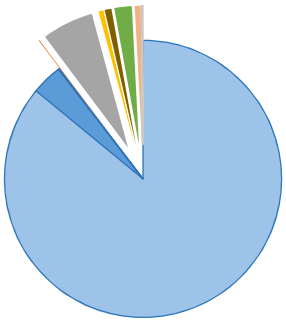
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



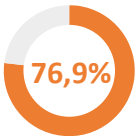
PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 89,7%

PLASTIC (86%) + SANITARY* (3,6%) + MEDICAL* (0,2%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 346 items/100 m



of the total count

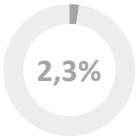
Fishery related litter items
Median = 13 items/100 m

of the total count

Plastic bags
Median = 19 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m



of the total count

Specific litter items and Top5

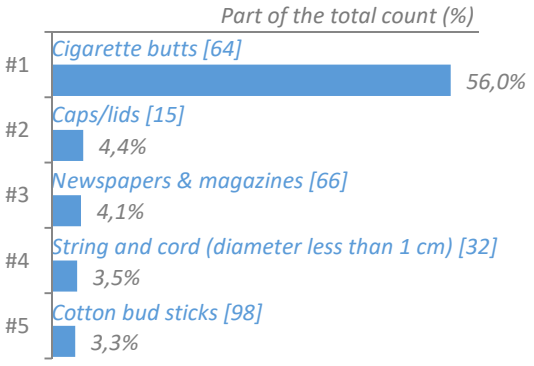
Cigarette filters represent
56,0%
of the total count

Cotton bud sticks represent
3,3%
of the total count

Balloons represent
0,1%
of the total count

Hunting cartridges represent
0,6%
of the total count

Top5 ranking of litter types



Ilha de Faro (PT004)

16 surveys

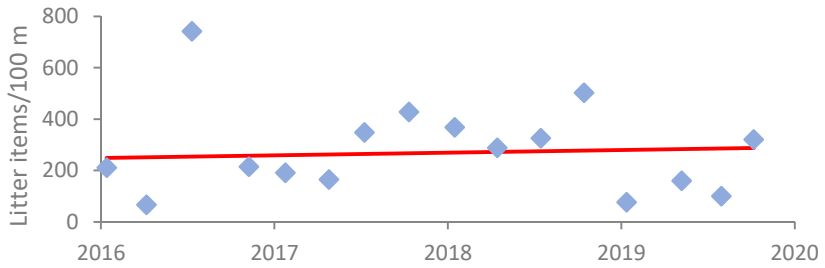
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 37.00299139
Lat. -7.9881

Abundance, trend and comparison at national and Atlantic area levels

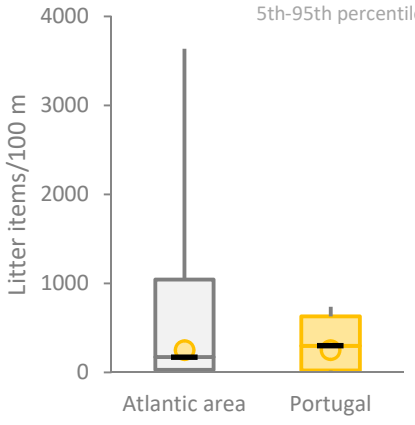
Median total count: 251 items/100 m
Average total count: 282 items/100 m



Non-significant increase of the total abundance over four years

Slope is 10,3 items/100 m per year
p-value = 0,412

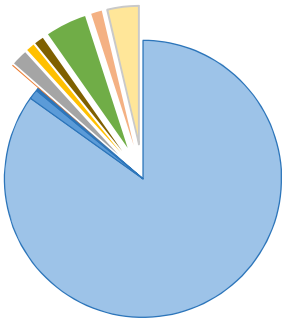
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 86,3%
PLASTIC (84,9%) + SANITARY* (1,1%) + MEDICAL* (0,3%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 127 items/100 m
65,8% of the total count

Fishery related litter items
Median = 18 items/100 m
8,5% of the total count

Plastic bags
Median = 1 item/100 m
2,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 10 fragments/100 m
4,8% of the total count

Specific litter items and Top5

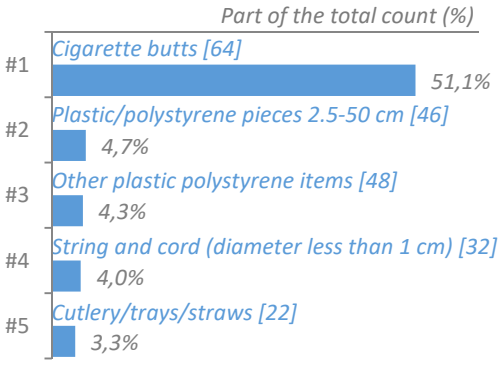
Cigarette filters represent
51,1%
of the total count

Cotton bud sticks represent
0,7%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,0%
of the total count

Top5 ranking of litter types



Batata (PT005)

16 surveys

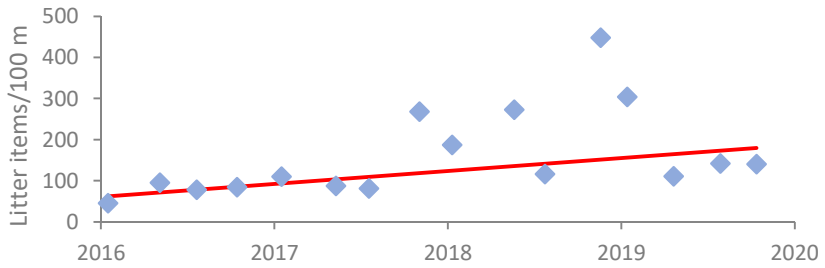
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 37.09725389
Lat. -8.667990556

Abundance, trend and comparison at national and Atlantic area levels

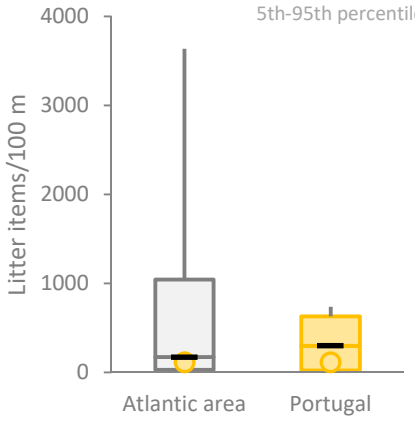
Median total count: 114 items/100 m
Average total count: 161 items/100 m



Significant increase of the total abundance over four years

Slope is 31,3 items/100 m per year
p-value = 0,0017

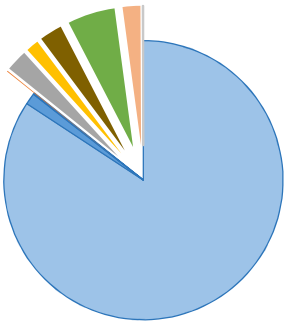
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 85,7%
PLASTIC (84,2%) + SANITARY* (1,3%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 84 items/100 m
77,1% of the total count

Fishery related litter items
Median = 6 items/100 m
4,0% of the total count

Plastic bags
Median = 4 items/100 m
3,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 3 fragments/100 m
2,5% of the total count

Specific litter items and Top5

Cigarette filters represent **60,9%** of the total count

Cotton bud sticks represent **0,9%** of the total count

Balloons represent **0,1%** of the total count

Hunting cartridges represent **0,0%** of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Cigarette butts [64]* 60,9%
#2 *Bottle caps [77]* 3,8%
#3 *Caps/lids [15]* 3,5%
#4 *Cutlery/trays/straws [22]* 3,3%
#5 *Crisp/sweet packets and lolly sticks [19]* 3,2%

Cabedelo (PT007)

16 surveys

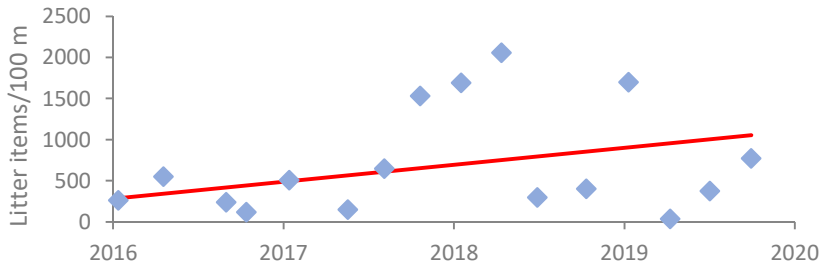
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 41.67363889
Lat. -8.826963889

Abundance, trend and comparison at national and Atlantic area levels

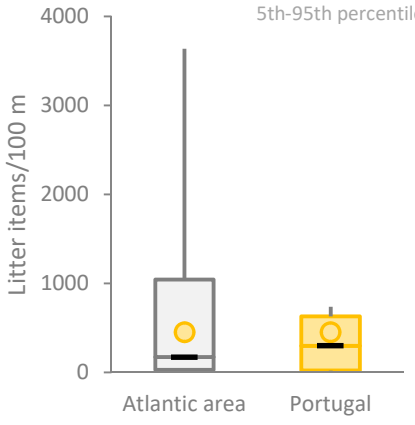
Median total count: 453 items/100 m
Average total count: 707 items/100 m



Significant increase of the total abundance over four years

Slope is 206 items/100 m per year
p-value = 0,048

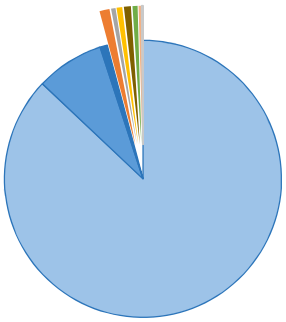
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 95,8%
PLASTIC (87%) + SANITARY* (7,9%) + MEDICAL* (0,9%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 195 items/100 m
35,1% of the total count

Fishery related litter items
Median = 50 items/100 m
21,4% of the total count

Plastic bags
Median = 11 items/100 m
2,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 59 fragments/100 m
11,1% of the total count

Specific litter items and Top5

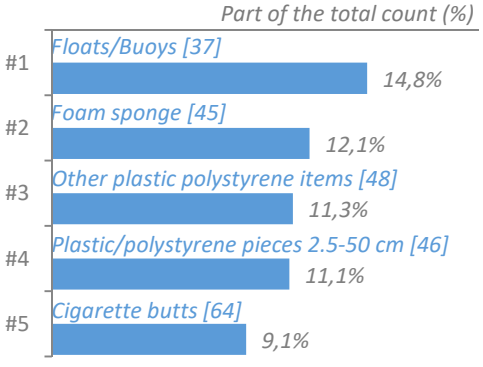
Cigarette filters represent
9,1%
of the total count

Cotton bud sticks represent
7,2%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,3%
of the total count

Top5 ranking of litter types



Osso de Baleia (PT008)

16 surveys

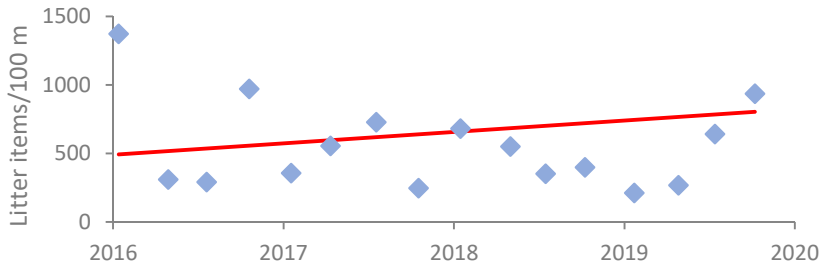
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.99785556
Lat. -8.916519444

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 474 items/100 m
Average total count: 554 items/100 m

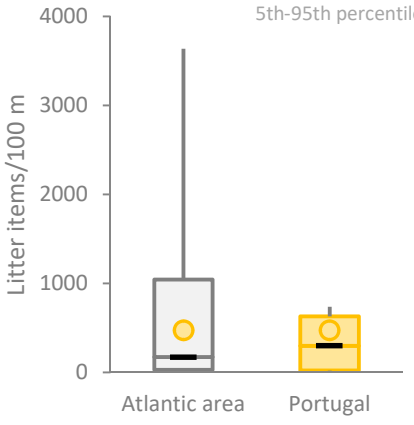


Non-significant increase of the total abundance over four years

Slope is 83,4 items/100 m per year

p-value = 0,153

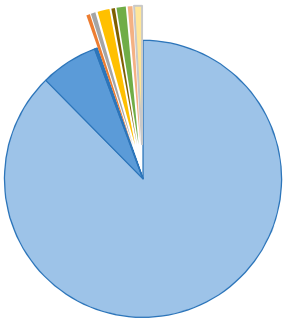
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



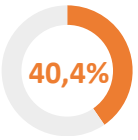
PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 94,6%

PLASTIC (87,6%) + SANITARY* (6,7%) + MEDICAL* (0,3%)

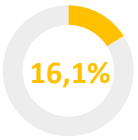
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 188 items/100 m



of the total count

Fishery related litter items
Median = 48 items/100 m

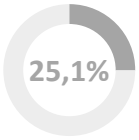


of the total count

Plastic bags
Median = 33 items/100 m

of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 105 fragments/100 m



of the total count

Specific litter items and Top5

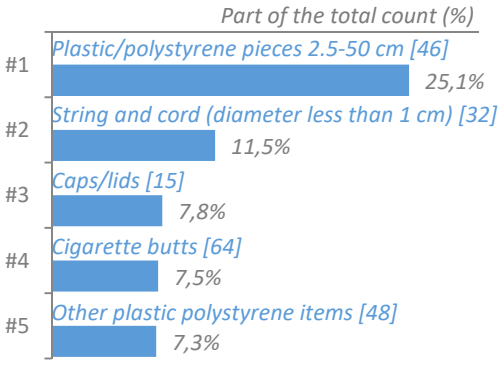
Cigarette filters represent
7,5%
of the total count

Cotton bud sticks represent
4,8%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,6%
of the total count

Top5 ranking of litter types



Amoeiras (PT009)

16 surveys

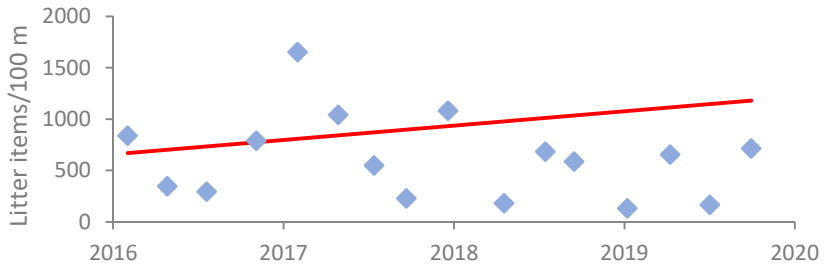
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.12511111
Lat. -9.390355556

Abundance, trend and comparison at national and Atlantic area levels

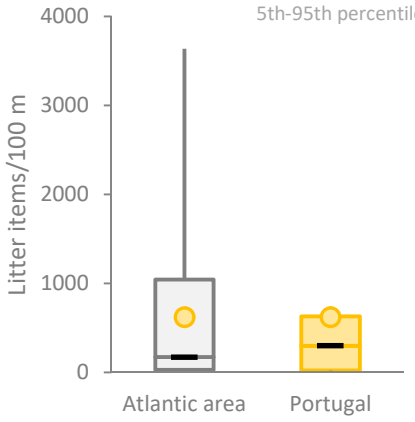
Median total count: 620 items/100 m
Average total count: 620 items/100 m



Non-significant increase of the total abundance over four years

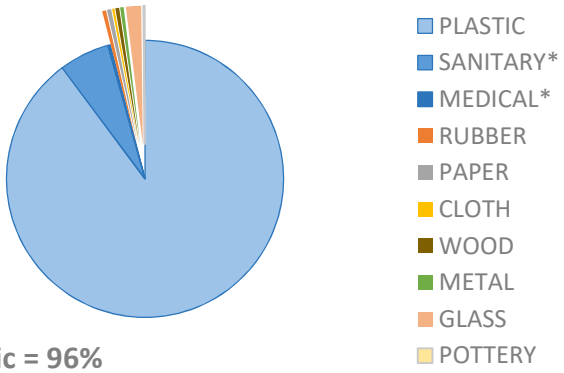
Slope is 139 items/100 m per year
p-value = 0,175

Box limits:
5th-95th percentiles



Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 96%
PLASTIC (89,8%) + SANITARY* (5,9%) + MEDICAL* (0,3%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 199 items/100 m
34,1% of the total count

Fishery related litter items
Median = 91 items/100 m
15,7% of the total count

Plastic bags
Median = 32 items/100 m
8,1% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 48 fragments/100 m
10,1% of the total count

Specific litter items and Top5

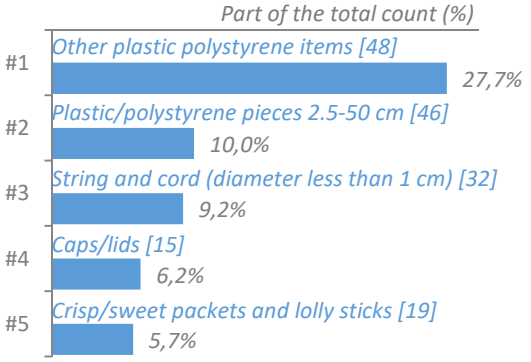
Cigarette filters represent
3,9%
of the total count

Cotton bud sticks represent
5,4%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,1%
of the total count

Top5 ranking of litter types



Fonte da Telha (PT010)

16 surveys

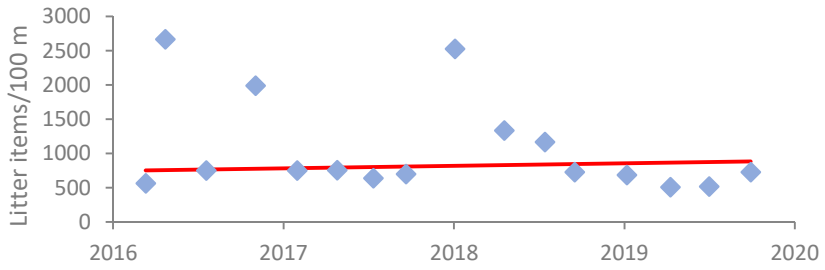
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 38.56458611
Lat. -9.192555556

Abundance, trend and comparison at national and Atlantic area levels

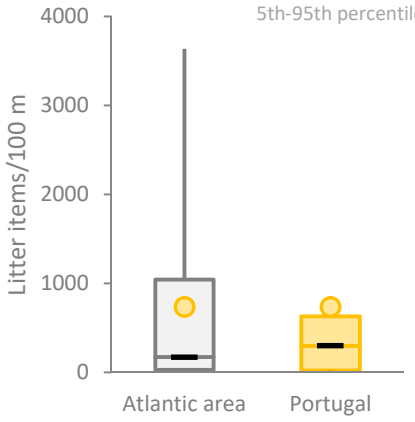
Median total count: 738 items/100 m
Average total count: 1061 items/100 m



Non-significant increase of the total abundance over four years

Slope is 37,3 items/100 m per year
p-value = 0,313

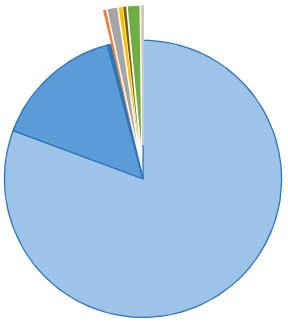
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 96,2%
PLASTIC (80,6%) + SANITARY* (15,2%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 473 items/100 m
62,4% of the total count

Fishery related litter items
Median = 66 items/100 m
7,2% of the total count

Plastic bags
Median = 23 items/100 m
3,1% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 59 fragments/100 m
16,8% of the total count

Specific litter items and Top5

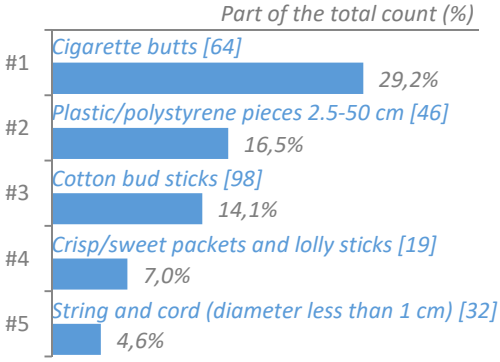
Cigarette filters represent
29,2%
of the total count

Cotton bud sticks represent
14,1%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types



Monte Velho (PT011)

16 surveys

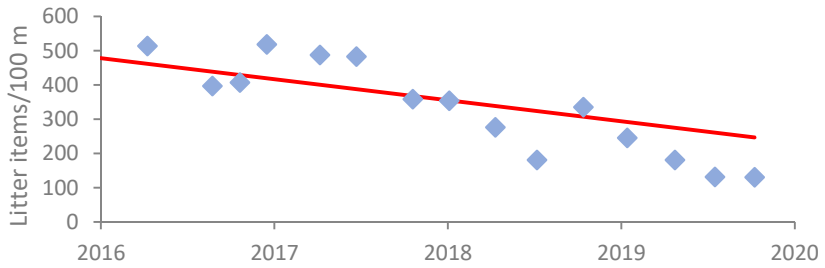
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 38.08164167
Lat. -8.811011111

Abundance, trend and comparison at national and Atlantic area levels

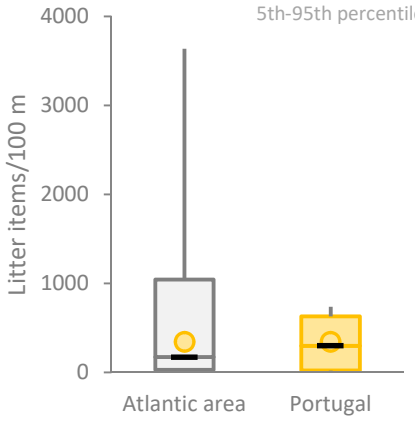
Median total count: 344 items/100 m
Average total count: 329 items/100 m



Significant decrease of the total abundance over four years

Slope is -61,1 items/100 m per year
p-value = 0,0076

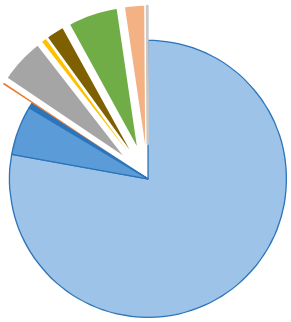
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 84,1%
PLASTIC (77,8%) + SANITARY* (5,8%) + MEDICAL* (0,6%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 151 items/100 m
51,1% of the total count

Fishery related litter items
Median = 66 items/100 m
20,4% of the total count

Plastic bags
Median = 16 items/100 m
5,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 18 fragments/100 m
7,0% of the total count

Specific litter items and Top5

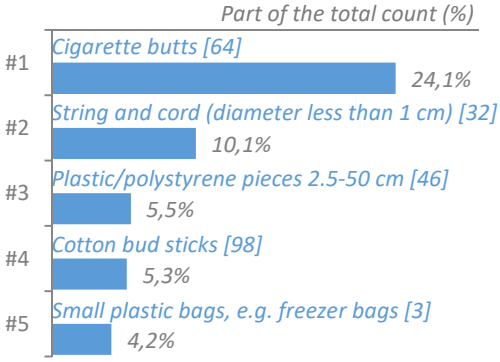
Cigarette filters represent
24,1%
of the total count

Cotton bud sticks represent
5,3%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,2%
of the total count

Top5 ranking of litter types



Barranha (PT012)

16 surveys

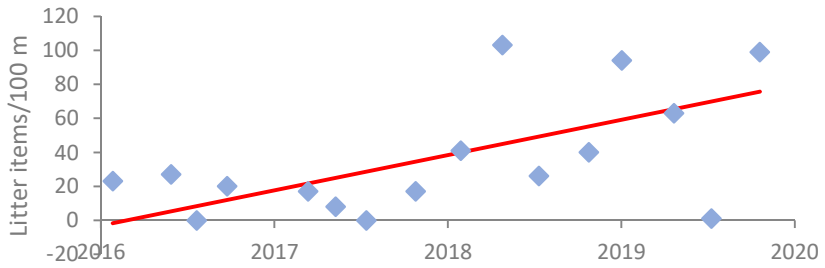
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 41.45476056
Lat. -8.779015556

Abundance, trend and comparison at national and Atlantic area levels

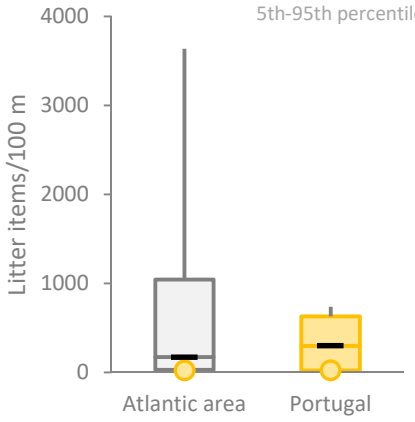
Median total count: 25 items/100 m
Average total count: 36 items/100 m



Significant increase of the total abundance over four years

Slope is 20,7 items/100 m per year
p-value = 0,0291

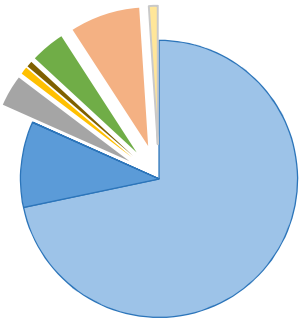
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 81,7%
PLASTIC (71,7%) + SANITARY* (10%) + MEDICAL* (0%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 18 items/100 m
62,9% of the total count

Fishery related litter items
Median = 2 items/100 m
15,5% of the total count

Plastic bags
Median = 0 item/100 m
6,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m
0,0% of the total count

Specific litter items and Top5

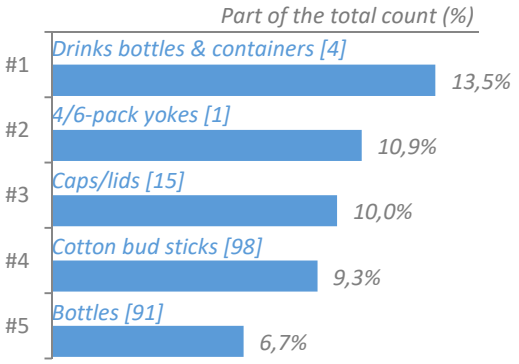
Cigarette filters represent
3,6%
of the total count

Cotton bud sticks represent
9,3%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,0%
of the total count

Top5 ranking of litter types



Paredes de Vitória (PT014)

11 surveys

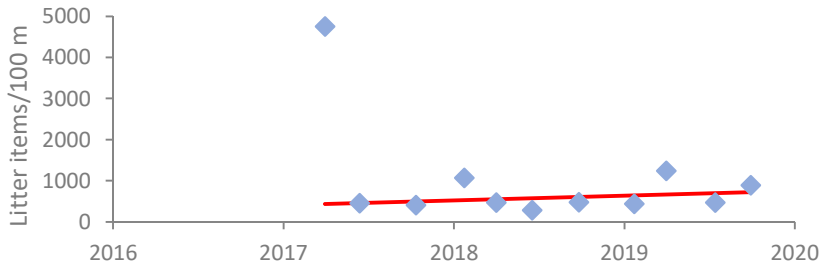
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.70278611
Lat. -9.04995

Abundance, trend and comparison at national and Atlantic area levels

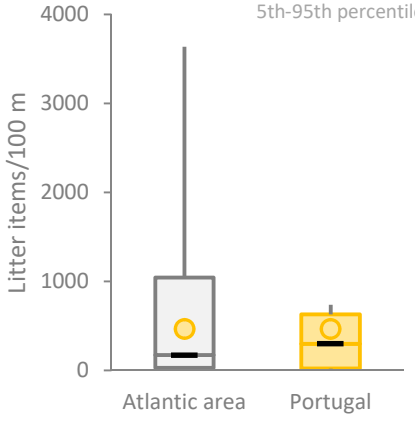
Median total count: 468 items/100 m
Average total count: 994 items/100 m



Non-significant increase of the total abundance over four years

Slope is 117 items/100 m per year
p-value = 0,324

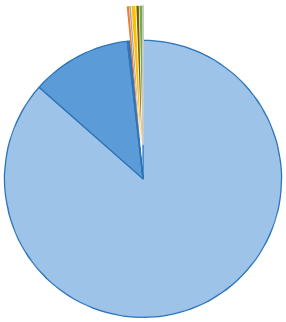
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 98,5%
PLASTIC (86,5%) + SANITARY* (11,7%) + MEDICAL* (0,3%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 301 items/100 m
56,3% of the total count

Fishery related litter items
Median = 92 items/100 m
18,0% of the total count

Plastic bags
Median = 43 items/100 m
4,9% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 82 fragments/100 m
17,3% of the total count

Specific litter items and Top5

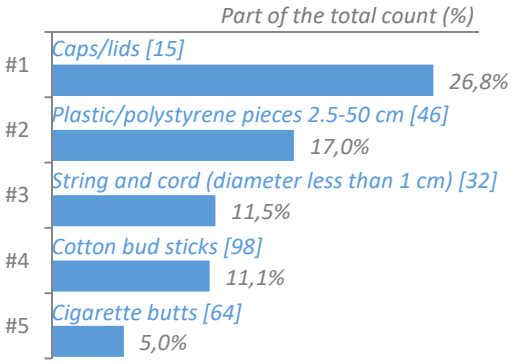
Cigarette filters represent
5,0%
of the total count

Cotton bud sticks represent
11,1%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
1,0%
of the total count

Top5 ranking of litter types



Furadouro Sul (PT015)

8 surveys

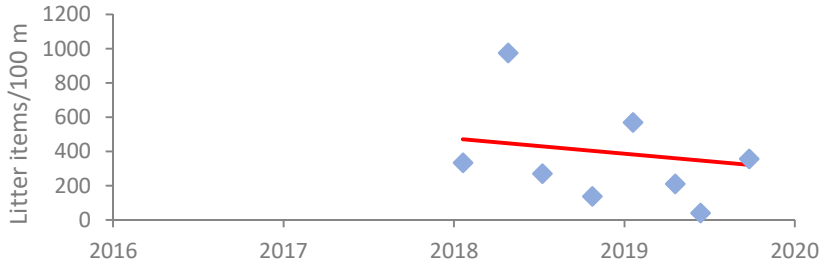
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.67249
Lat. -31.12118

Abundance, trend and comparison at national and Atlantic area levels

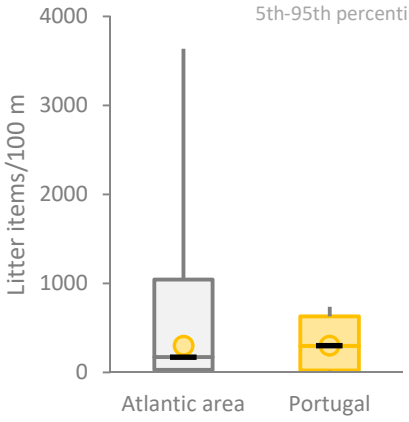
Median total count: 301 items/100 m
Average total count: 361 items/100 m



Non-significant decrease of the total abundance over four years

Slope is -89,2 items/100 m per year
p-value = 0,452

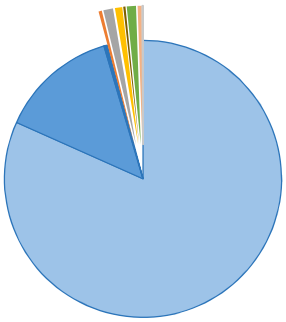
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 95,8%
PLASTIC (81,6%) + SANITARY* (13,8%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 187 items/100 m
74,3% of the total count

Fishery related litter items
Median = 35 items/100 m
9,7% of the total count

Plastic bags
Median = 4 items/100 m
3,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 8 fragments/100 m
6,7% of the total count

Specific litter items and Top5

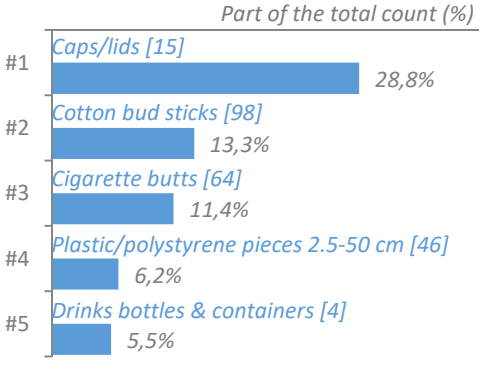
Cigarette filters represent
11,4%
of the total count

Cotton bud sticks represent
13,3%
of the total count

Balloons represent
0,3%
of the total count

Hunting cartridges represent
0,6%
of the total count

Top5 ranking of litter types



Aberta-Pedrogão (PT016)

8 surveys

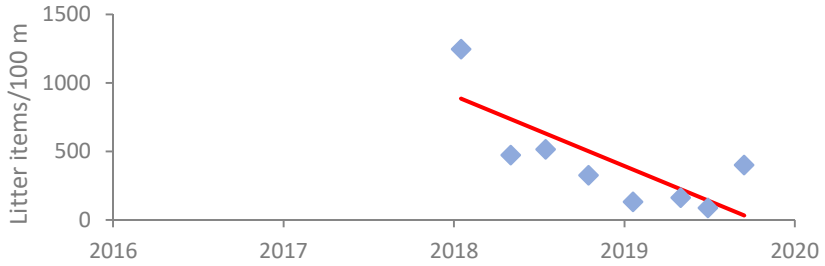
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.67249
Lat. -31.12118

Abundance, trend and comparison at national and Atlantic area levels

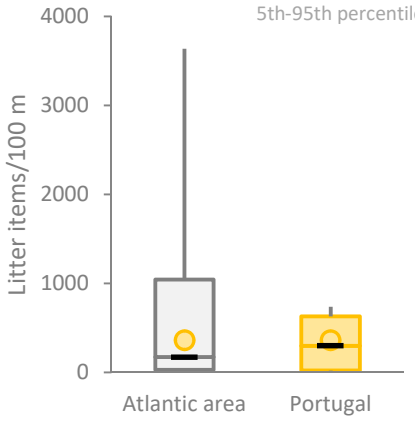
Median total count: 363 items/100 m
Average total count: 417 items/100 m



Significant decrease of the total abundance over four years

Slope is -512 items/100 m per year
p-value = 0,0305

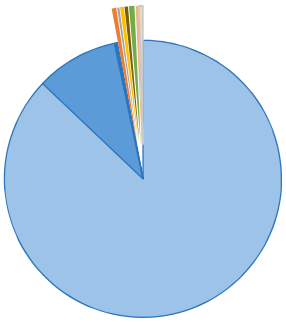
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 97,1%
PLASTIC (87,1%) + SANITARY* (9,6%) + MEDICAL* (0,4%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 103 items/100 m
44,3% of the total count

Fishery related litter items
Median = 67 items/100 m
19,7% of the total count

Plastic bags
Median = 18 items/100 m
6,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 18 fragments/100 m
15,9% of the total count

Specific litter items and Top5

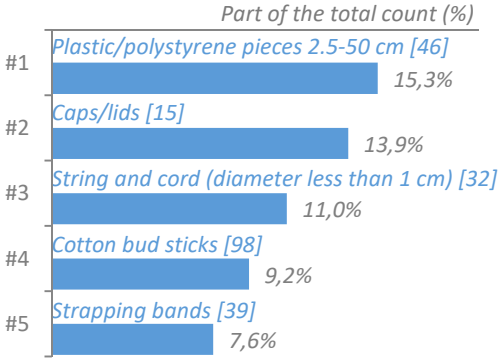
Cigarette filters represent
4,3%
of the total count

Cotton bud sticks represent
9,2%
of the total count

Balloons represent
0,2%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



Baleal Leste (PT017)

9 surveys

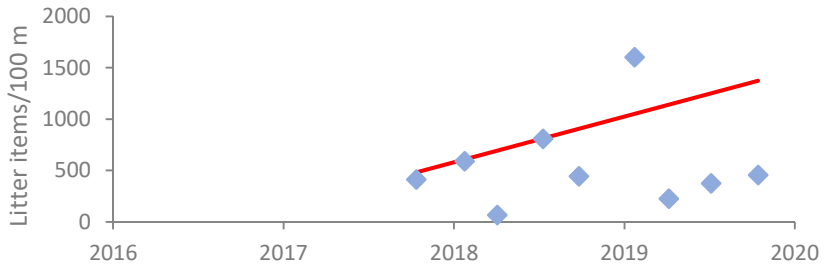
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.67249
Lat. -31.12118

Abundance, trend and comparison at national and Atlantic area levels

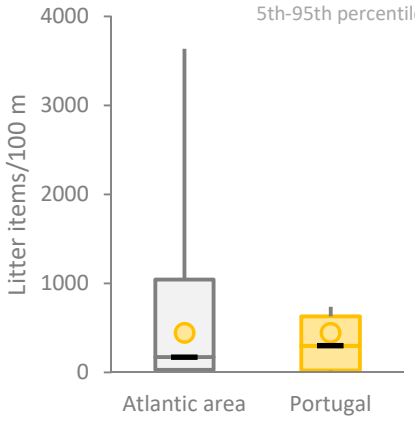
Median total count: 444 items/100 m
Average total count: 553 items/100 m



Non-significant increase of the total abundance over four years

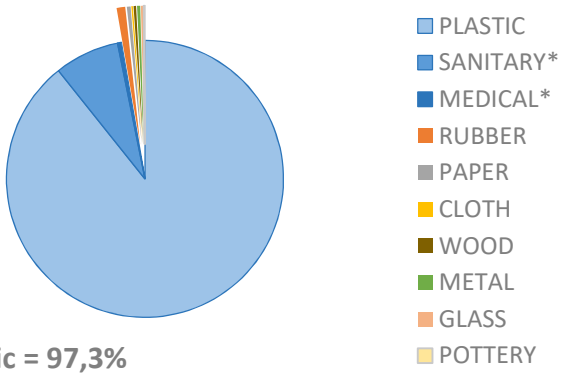
Slope is 443 items/100 m per year
p-value = 0,0597

Box limits:
5th-95th percentiles



Abundance and distribution (categories and groups of interest)

Distribution of the total count



Total plastic = 97,3%
PLASTIC (89,3%) + SANITARY* (7,6%) + MEDICAL* (0,5%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 214 items/100 m
47,0% of the total count

Fishery related litter items
Median = 145 items/100 m
25,2% of the total count

Plastic bags
Median = 14 items/100 m
4,8% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 33 fragments/100 m
11,9% of the total count

Specific litter items and Top5

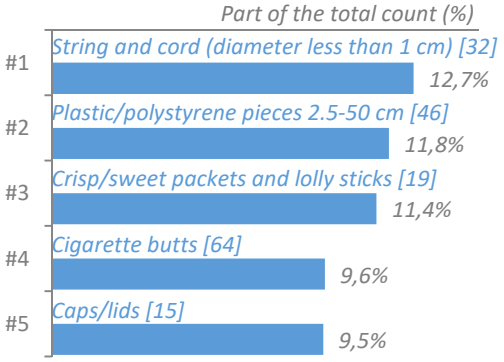
Cigarette filters represent **9,6%** of the total count

Cotton bud sticks represent **6,5%** of the total count

Balloons represent **0,3%** of the total count

Hunting cartridges represent **0,4%** of the total count

Top5 ranking of litter types



Areia - Corvo - Azores (PT018)

16 surveys

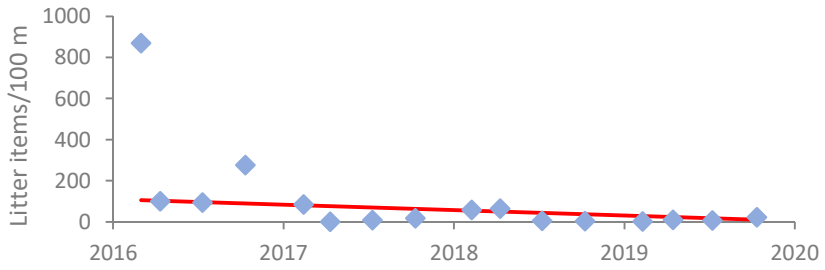
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 39.67249
Lat. -31.12118

Abundance, trend and comparison at national and Atlantic area levels

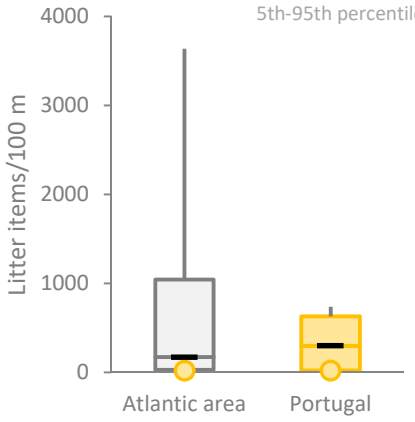
Median total count: 20 items/100 m
Average total count: 101 items/100 m



Significant decrease of the total abundance over four years

Slope is -26,3 items/100 m per year
p-value = 0,0128

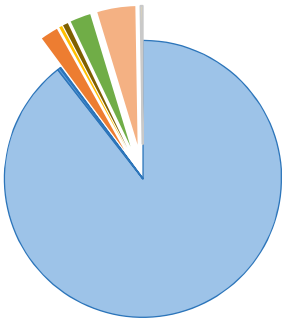
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 89,9%
PLASTIC (89,4%) + SANITARY* (0,3%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 7 items/100 m
31,9% of the total count

Fishery related litter items
Median = 1 item/100 m
8,6% of the total count

Plastic bags
Median = 0 item/100 m
0,4% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m
39,1% of the total count

Specific litter items and Top5

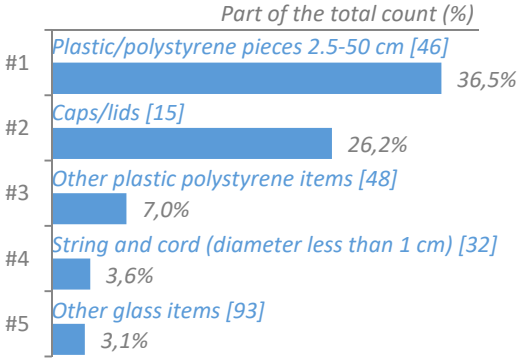
Cigarette filters represent
0,9%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
1,7%
of the total count

Hunting cartridges represent
0,7%
of the total count

Top5 ranking of litter types



Almoxarife - Faial - Azores (PT020)

16 surveys

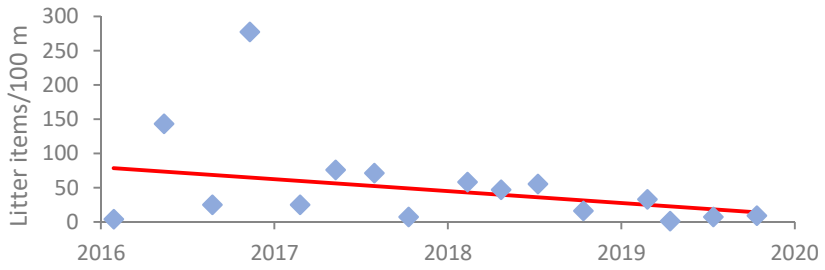
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 38.55543
Lat. -28.61005

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 29 items/100 m
Average total count: 53 items/100 m

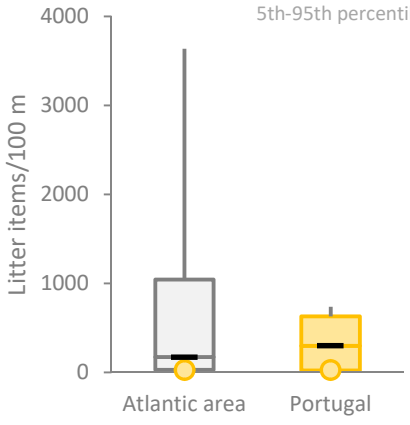


Non-significant decrease of the total abundance over four years

Slope is -17,3 items/100 m per year

p-value = 0,0574

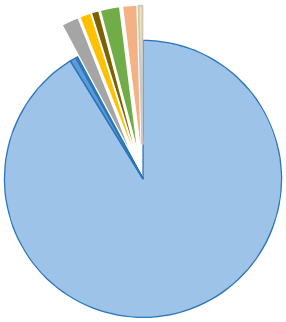
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

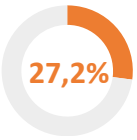
Total plastic = 92,2%

PLASTIC (91,2%) + SANITARY* (0,7%) + MEDICAL* (0,2%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics

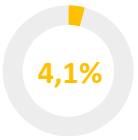
Median = 8 items/100 m



of the total count

Fishery related litter items

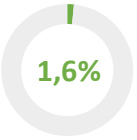
Median = 1 item/100 m



of the total count

Plastic bags

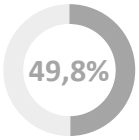
Median = 0 item/100 m



of the total count

Plastic fragments >2.5 cm (non-identified)

Median = 3 fragments/100 m



of the total count

Specific litter items and Top5

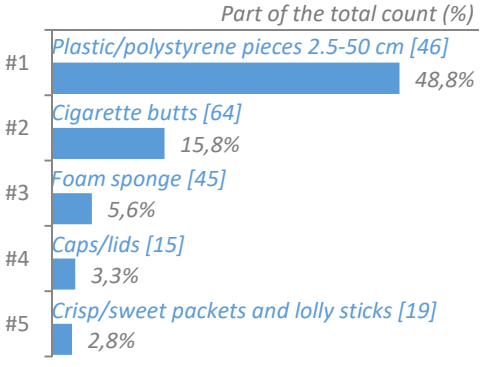
Cigarette filters represent
15,8%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,5%
of the total count

Top5 ranking of litter types



Praia do Norte - Faial - Azores (PT021)

16 surveys

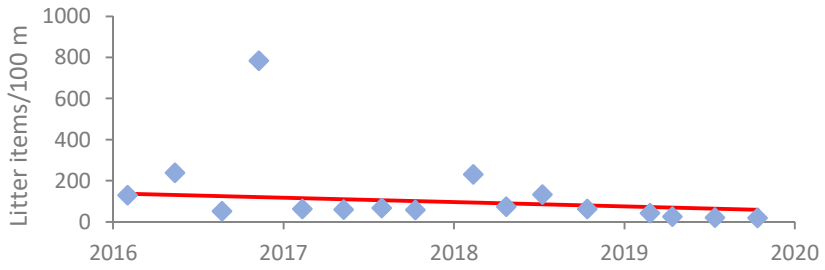
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 38.60994
Lat. -28.75625

Abundance, trend and comparison at national and Atlantic area levels

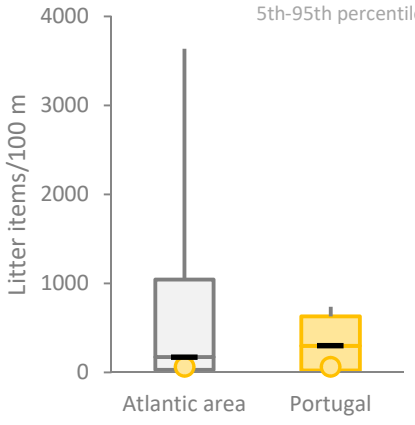
Median total count: 63 items/100 m
Average total count: 129 items/100 m



Non-significant decrease of the total abundance over four years

Slope is -21,1 items/100 m per year
p-value = 0,133

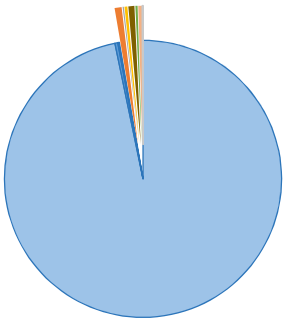
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 97,3%
PLASTIC (96,7%) + SANITARY* (0,3%) + MEDICAL* (0,2%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 13 items/100 m
26,2% of the total count

Fishery related litter items
Median = 5 items/100 m
7,6% of the total count

Plastic bags
Median = 2 items/100 m
1,7% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 31 fragments/100 m
49,8% of the total count

Specific litter items and Top5

Cigarette filters represent
0,5%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
1,7%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Plastic/polystyrene pieces 2.5-50 cm [46]* 48,4%
#2 *Caps/lids [15]* 18,1%
#3 *Shoes/sandals [44]* 4,5%
#4 *Foam sponge [45]* 3,0%
#5 *Drinks bottles & containers [4]* 2,7%

Praia da Maia - São Miguel - Azores (PT022)

15 surveys

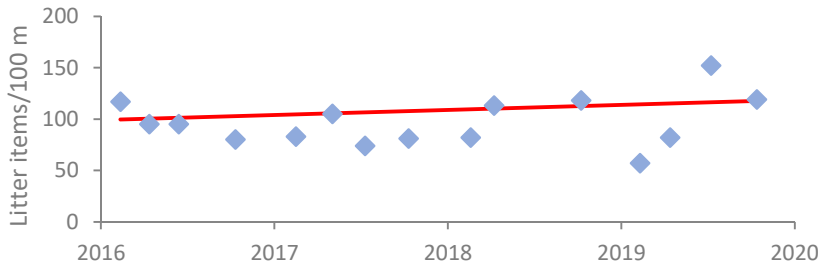
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 37.83302
Lat. -25.38632

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 95 items/100 m
Average total count: 97 items/100 m

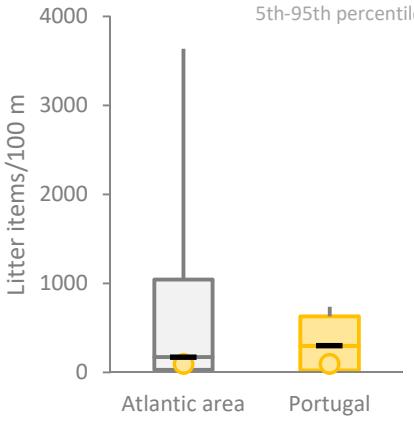


Non-significant increase of the total abundance over four years

Slope is 4,9 items/100 m per year

p-value = 0,19

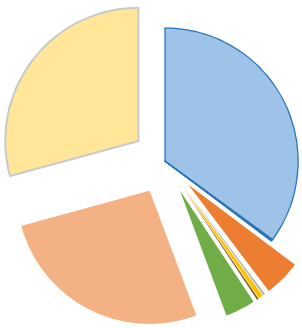
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 35,2%

PLASTIC (35%) + SANITARY* (0,1%) + MEDICAL* (0,1%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 0 item/100 m
0,8% of the total count

Fishery related litter items
Median = 0 item/100 m
0,3% of the total count

Plastic bags
Median = 0 item/100 m
0,2% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m
10,7% of the total count

Specific litter items and Top5

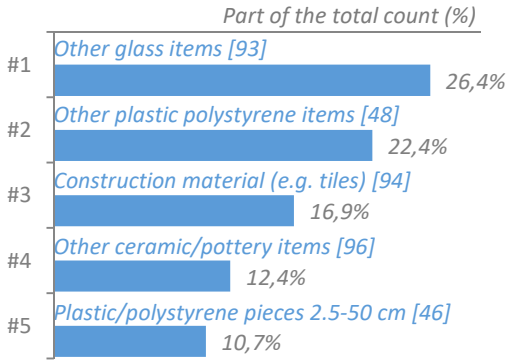
Cigarette filters represent
0,0%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
0,0%
of the total count

Top5 ranking of litter types



Pedreira - São Miguel - Azores (PT023)

11 surveys

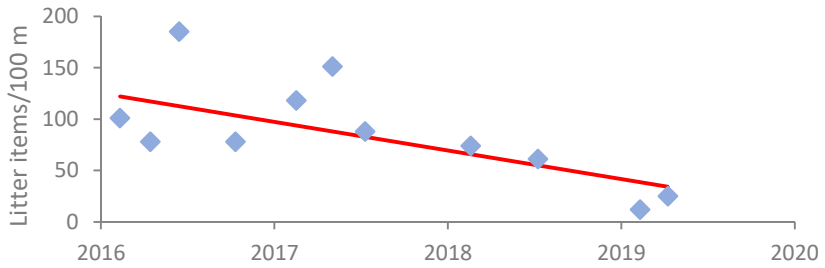
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 37.71578
Lat. -25.464

Abundance, trend and comparison at national and Atlantic area levels

Median total count: 78 items/100 m
Average total count: 88 items/100 m

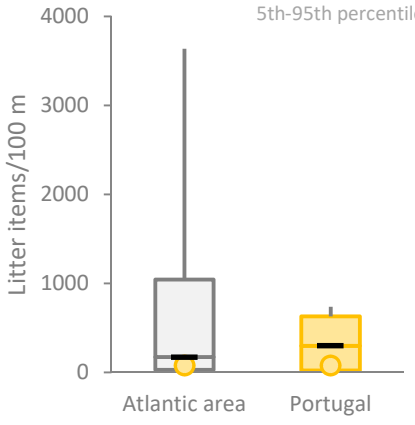


Significant decrease of the total abundance over four years

Slope is -27,7 items/100 m per year

p-value = 0,0062

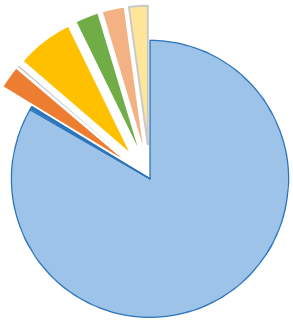
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 83,7%

PLASTIC (83,3%) + SANITARY* (0,2%) + MEDICAL* (0,2%)

** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 1 item/100 m
10,5% of the total count

Fishery related litter items
Median = 1 item/100 m
4,1% of the total count

Plastic bags
Median = 0 item/100 m
3,6% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 0 fragment/100 m
18,3% of the total count

Specific litter items and Top5

Cigarette filters represent
0,6%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
1,3%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Other plastic polystyrene items [48]* 47,9%
#2 *Plastic/polystyrene pieces 2.5-50 cm [46]* 18,3%
#3 *Other textiles [59]* 5,8%
#4 *Caps/lids [15]* 5,6%
#5 *Bags (shopping) [2]* 3,6%

São Lourenço - Santa Maria - Azores (PT024)

15 surveys

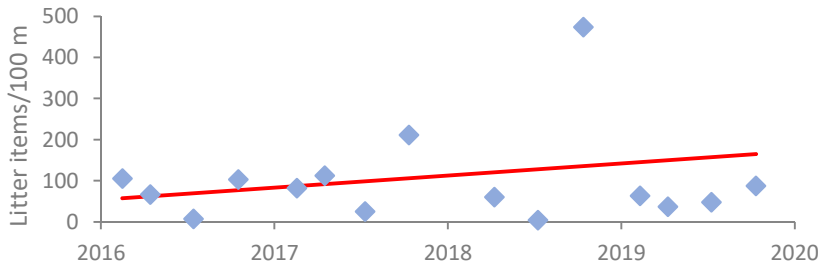
Data source: **OSPAR beach litter monitoring** (https://www.mcsuk.org/ospar)
Reporting period: **2016-2019**

Calculation tools: **LitteR package** of R and **MATLAB®**
Data format: **OSPAR format** without considering litter types [117], [67], [74], [75]
[117] Plastic/polystyrene pieces < 2.5 cm; [67] Other paper items; [74] Other wood < 50 cm; [75] Other wood > 50 cm

Coordinates
Long. 36.98847
Lat. -25.05488

Abundance, trend and comparison at national and Atlantic area levels

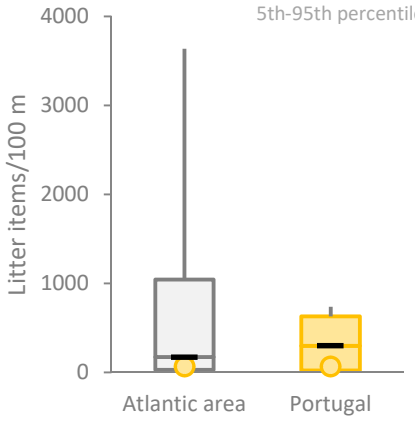
Median total count: 66 items/100 m
Average total count: 99 items/100 m



Non-significant increase of the total abundance over four years

Slope is 29,2 items/100 m per year
p-value = 0,19

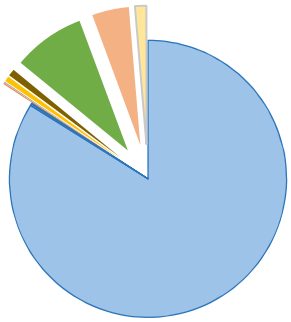
Box limits:
5th-95th percentiles



Median number of litter items of the site
Median number of litter items of the area/country

Abundance and distribution (categories and groups of interest)

Distribution of the total count



PLASTIC
SANITARY*
MEDICAL*
RUBBER
PAPER
CLOTH
WOOD
METAL
GLASS
POTTERY

Total plastic = 84,2%
PLASTIC (83,9%) + SANITARY* (0,2%) + MEDICAL* (0,1%)
** "SANITARY" and "MEDICAL" items are mainly made out of plastic.*

Single Use Plastics
Median = 4 items/100 m
8,4% of the total count

Fishery related litter items
Median = 3 items/100 m
5,6% of the total count

Plastic bags
Median = 0 item/100 m
0,3% of the total count

Plastic fragments >2.5 cm (non-identified)
Median = 14 fragments/100 m
35,6% of the total count

Specific litter items and Top5

Cigarette filters represent
4,2%
of the total count

Cotton bud sticks represent
0,0%
of the total count

Balloons represent
0,0%
of the total count

Hunting cartridges represent
2,0%
of the total count

Top5 ranking of litter types

Part of the total count (%)

#1 *Plastic/polystyrene pieces 2.5-50 cm [46]* 31,1%
#2 *Other plastic polystyrene items [48]* 28,8%
#3 *Bottle caps [77]* 6,7%
#4 *Plastic/polystyrene pieces > 50 cm [47]* 4,4%
#5 *Cigarette butts [64]* 4,2%