

Litter on beaches in Northern Ireland 2016



**KEEP
NORTHERN
IRELAND
BEAUTIFUL**



**MARINE
SURVEY**

Executive summary

This report summarises the key findings of a quarterly survey of litter found on ten reference beaches around Northern Ireland during the period September 2012 to October 2016 using the internationally-recognised OSPAR methodology. It compares levels to a group of beaches across the UK and Ireland, and to a larger group of beaches across the North East shores of Europe.

Between September 2012 and October 2016 an average of 528 items of litter were observed per 100m of beach around Northern Ireland. There has been no significant reduction in the average number of items observed since the beginning of the survey.

The storms at the end of December 2013 caused almost twice as much plastic and sanitary litter to be deposited on the beaches, suggesting a large reservoir of these materials in the water and sediment close to shore.

There is a lot of variability in the total items observed between the individual survey windows, indicating that any average figures come with a large measure of uncertainty.

The surveys show strong seasonality in the total number of items observed, with on average nearly 50% more items observed during the Winter and Spring windows as in the

Summer and Autumn windows. These results stand in contrast to those from other parts of the UK where there is no significant seasonal variation.

As part of this Marine Litter programme people from over 25 different business and community groups have donated 5,424 hours to protecting our beaches. Together they have removed 4,187 bags of litter, protecting the environment and improving the amenity of these beaches. Once a survey has been completed, volunteers clean the beach, which helps protect the local environment and ensure the integrity of the data collected during the next survey.

The European Union's Marine Strategy Framework Directive (MSFD) is designed to more effectively protect the marine environment across Europe. The Directive aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect a resource upon which many economic and social activities depend. For marine litter, GES is defined as "properties and quantities of marine litter do not cause harm to the coastal and marine environment".

OSPAR is the mechanism by which fifteen governments of the western coast and catchments of Europe cooperate to protect the marine environment. It pre-dates the MSFD, and covers biodiversity, human activities, hazardous substances and radiation. The convention also lends its name to the method of surveying litter on beaches used in this report.

The data used in this report contributes to the assessment of GES for marine litter.

Cover: animals often mistake rubbish for food which can result in injury and even death. This photo shows one of our most charismatic species, the Grey seal attempting to eat a plastic bag.

Foreword



Most people don't litter. Yet as this report shows you can still count five pieces of litter for every step you take around our coast. So there are still some people out there whose behaviour needs to be challenged.

It cost Northern Ireland ratepayers £43m to clean our streets last year and this report shows clearly just how bad the problem of littering is, particularly where much of it accumulates, in the sea. Our beaches are far more littered than our streets. So how do we turn the tide on marine litter?

Clearly we need to get to the heart of the problem by focusing on changing litterer's behaviour. Some organisations have already joined forces to do this through Live Here Love Here, and its success to date bodes well for us all - except for the litterers – but it needs every Council involved and greater support from companies producing packaging. It needs scale to regularly get in front of the littering minority.

Greater public awareness of the personal consequences of littering is needed. The current enforcement postcode lottery leaves too much to chance; where enforcement is best (compared to worst) it is 100 times more likely you will get a fine if you drop litter. The perception that if you drop litter “nothing happens” has to be demolished. Wider consequences are also important and the front cover of this report shows just one way marine life is being devastated by our selfish behaviour.

Yes, this is a global problem but we all need to do our bit to stop litter entering the oceans. Take part in a clean-up or organise your own, support your council's efforts and join the growing movement that is Live Here Love Here. The challenge is great but note: all the litter counted for this report has been removed from our beaches by dedicated volunteers. Their efforts must give us hope to all work towards achieving a litter free society.



Dr. Ian Humphreys

CHIEF EXECUTIVE,
KEEP NORTHERN IRELAND
BEAUTIFUL

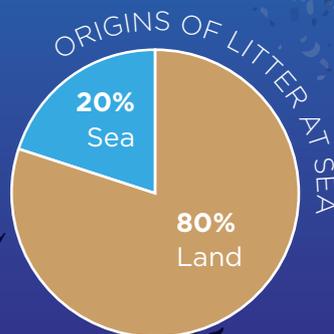
Sources

MARINE



What makes marine litter 'pollution'?

Pollution is defined as the 'presence in or introduction into the environment of a substance which has harmful or poisonous effects'.



8 million
tonnes of plastic waste
discarded into the
oceans **every year**¹

¹ DOI: 10.1126/science.aaa7848

LITTER

Impacts

£36m **Loss to N.I. amenity**

£6m **Loss to N.I. tourism**

Littered coastal areas leads to loss of revenue and reputation



Food

Potential contamination of fish and shellfish eaten as food



Industry

Impact on power stations and factories that use sea water for cooling

FISH & CHIPS

£?

Ingestion

Marine life, such as turtles, often eat plastic mistaking it for food

Commercial shipping

Boats become stranded at sea by blocked propellers or intakes



Invasion

Possible transportation of alien species across sea regions on floating litter



5 trillion+

pieces of plastic estimated to be afloat at sea²

² <http://dx.doi.org/10.1371/journal.pone.0111913>

Toxicity

Fish ingest plastic, are then caught by fishermen and the plastic is returned to humans via the food chain



Entanglement

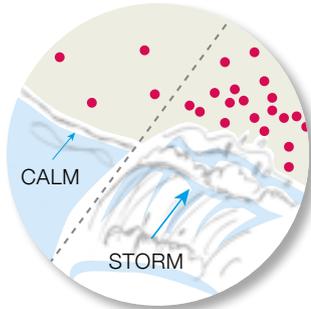
Marine species such as seals, easily become entangled in discarded fishing debris



Smothering

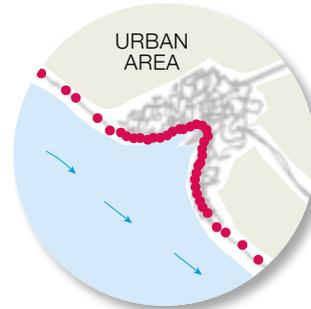
Discarded litter creates a suffocating cover over the seabed

What affects where litter is found?



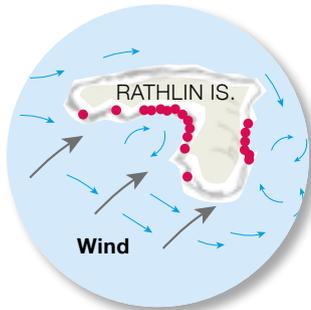
Storms at sea

Strong winds and big waves can churn up the sea and drive litter onto the shore



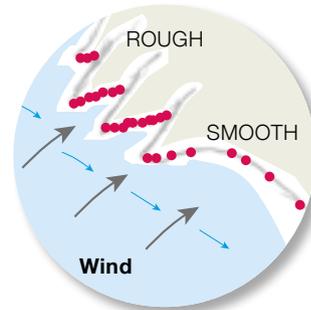
Distance from urban areas

Beaches further from large population centres tend to have less litter on them



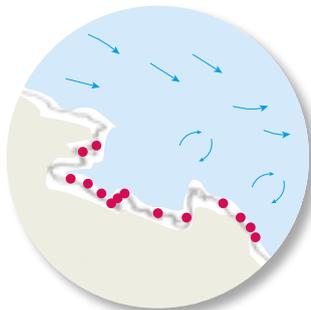
Topography

Beaches facing into the prevailing winds accumulate more plastic litter than ones facing in other directions



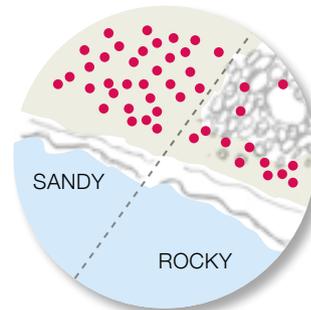
Roughness of the coastline

Very rough coastlines with lots of small bays tend to have more litter on them



Currents

Areas of lower currents (smaller arrows) and slack water lack the energy to carry marine litter, so it is generally deposited in these areas



Sandy or rocky beaches

Small pieces of litter tend to get worked down through the gaps between pebbles and trapped, so you see more small litter items on sandy beaches giving the impression they are more littered

Individual elements of page have been adapted from the following: Vermeiren, P., Muñoz, C. C., & Ikejima, K. (2016). Sources and sinks of plastic debris in estuaries: A conceptual model integrating biological, physical and chemical distribution mechanisms. *Marine Pollution Bulletin*. Williams A., Tudorb D.T. (2001). Litter Burial and Exhumation: Spatial and Temporal Distribution on a Cobble Pocket Beach. *Marine Pollution Bulletin*

Volunteers

RUNKERRY STRAND

- Runkerry Geocachers
- CITO Geocachers
- Include Youth

🧑 176 🕒 216 🗑️ 400

WHITE PARK BAY

- Friends of White Park Bay

🧑 353 🕒 333 🗑️ 811

RATHLIN ISLAND

- Rathlin Island Community and Development Association
- Volunteer Now

🧑 302 🕒 276 🗑️ 594

BALLYWALTER

- Ballywalter Action Group
- Include Youth
- CITO Geocachers
- Danske Bank

🧑 185 🕒 228 🗑️ 360

PORTAVOGIE

- Portavogie Action Group
- Glastry College

🧑 212 🕒 402 🗑️ 396

BALLYHORNAN

- Ballyhornan Residents Association
- Citi Belfast
- NI Environmental Agency
- St Patrick's Grammar School
- Surfers Against Sewage

🧑 219 🕒 473 🗑️ 483

Key

BEACH SURVEYED

- Volunteer group(s) who cleaned them

🧑 Number of volunteers

🕒 Total volunteer hours

🗑️ Estimated kilograms of litter

Total (for 10 beaches)

🧑 2,464

🕒 5,424

🗑️ 4,187

🧑 Our fantastic volunteers are indispensable to the project, and we thank them.

ROSTREVOR

- Kilbroney Residents Association

🧑 170 🕒 293 🗑️ 338

KILKEEL NORTH

- Mourne Heritage Trust
- SERC Students
- CITO Geocachers
- Citi Belfast
- Power NI
- Probation Board NI

🧑 383 🕒 1085 🗑️ 1125

TYRELLA

- McDonald's Downpatrick
- St Joseph's Primary School Downpatrick
- Translink
- Danske Bank
- AMEY

🧑 291 🕒 534 🗑️ 591

ARDGLASS

- Ardglass Festival Association
- McDonald's Downpatrick
- Citi Belfast

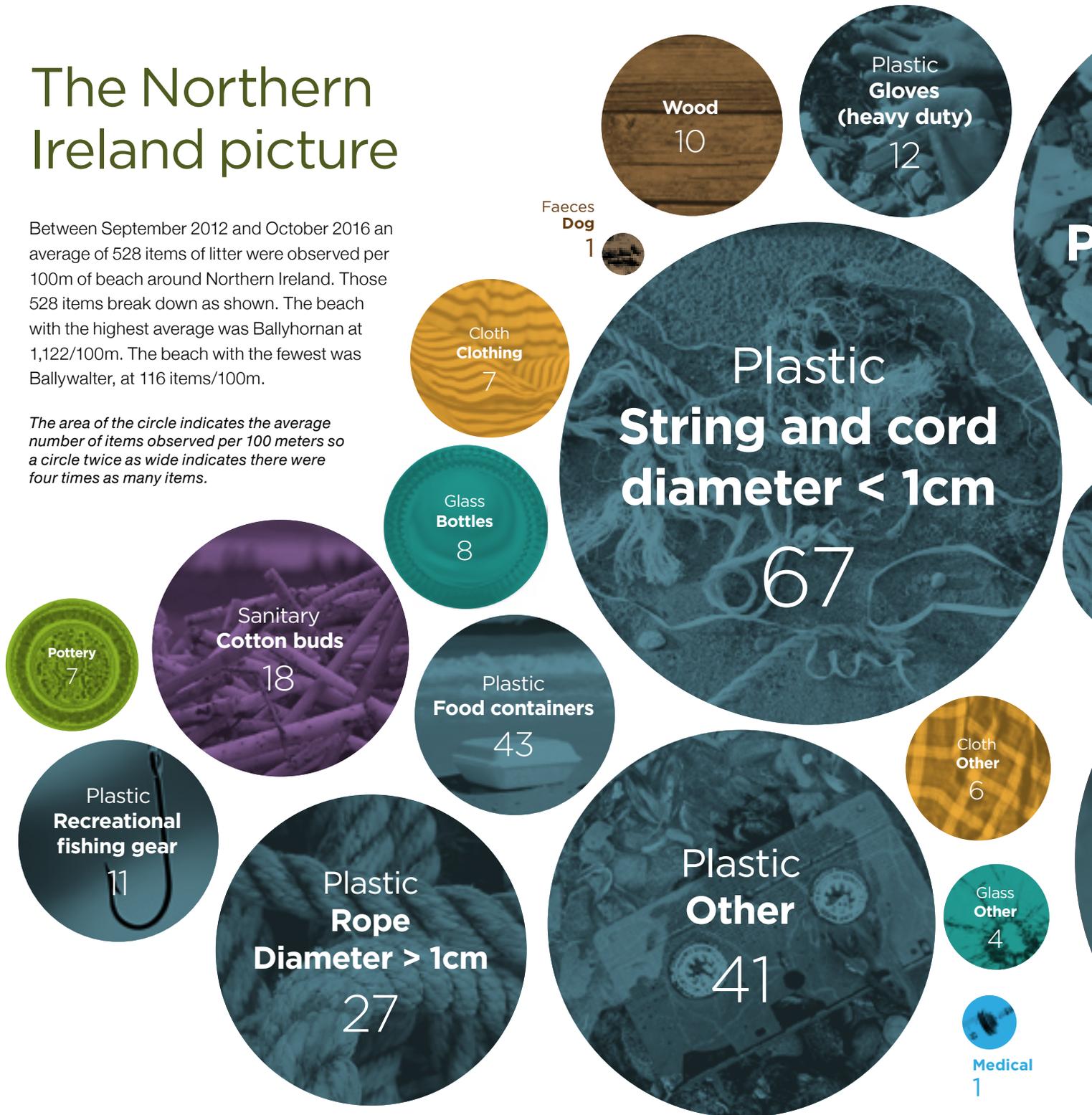
🧑 173 🕒 327 🗑️ 347

NORTHERN IRELAND

The Northern Ireland picture

Between September 2012 and October 2016 an average of 528 items of litter were observed per 100m of beach around Northern Ireland. Those 528 items break down as shown. The beach with the highest average was Ballyhornan at 1,122/100m. The beach with the fewest was Ballywalter, at 116 items/100m.

The area of the circle indicates the average number of items observed per 100 meters so a circle twice as wide indicates there were four times as many items.





Survey comparisons

In total there have been 1,030 surveys in the OSPAR region, and 146 in the Celtic Seas region. Countries with more surveys will have a greater impact on the average items / 100m.

There have been 14 rounds of surveys in Northern Ireland. (See pages 12 and 13 for more detail.)

Key

● OSPAR

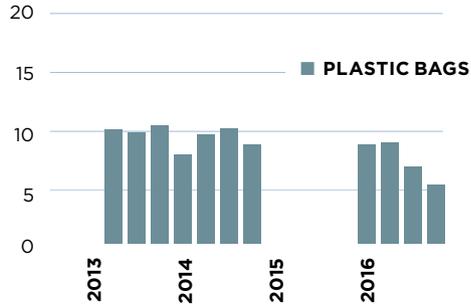
● CELTIC SEAS

Country

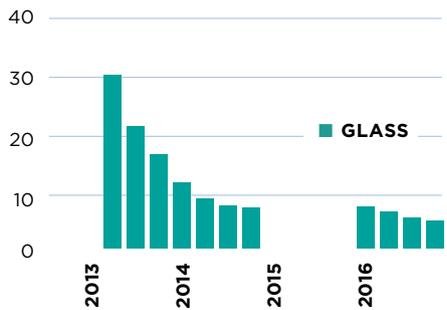
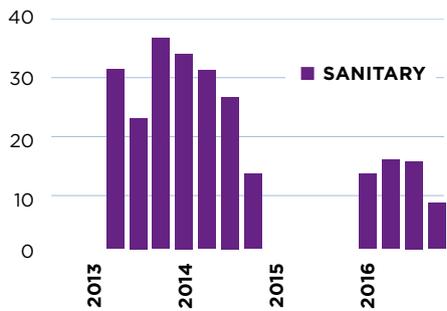
○ Number of surveys



The three types of litter to have shown a sustained fall in average number observed since 2012 have been glass, sanitary waste and plastic bags. Shown is a rolling average of the four previous surveys, which removes the effect of seasonality and makes the trend easier to see.

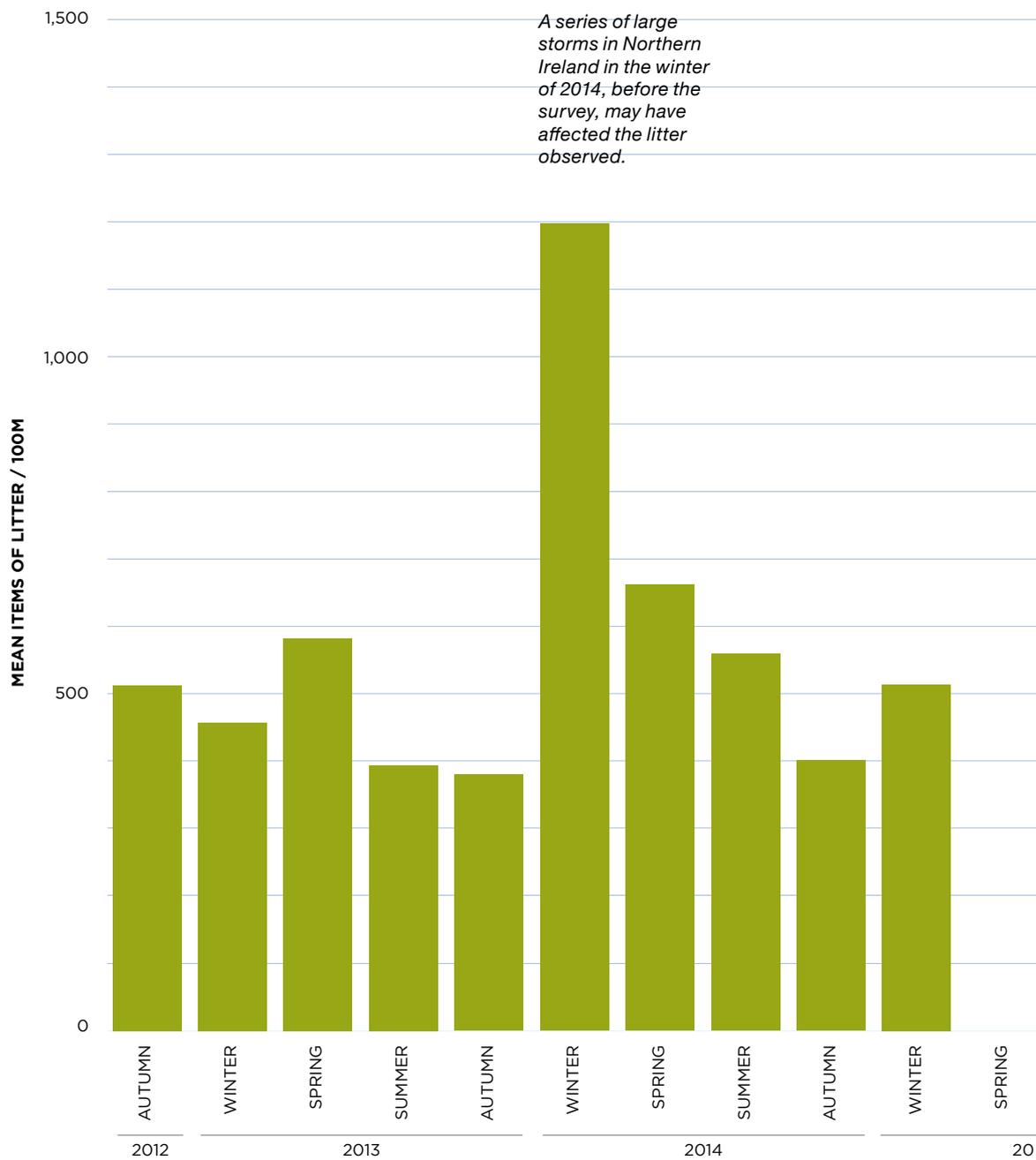


MEAN ITEMS OF LITTER / 100M



Before and After (above) – Once the survey has been carried out by trained surveyors, local volunteer groups remove as much of the litter from the as possible. These images of before and after from Ardglass show the difference this can make. Information about litter is collected by trained surveyors (top) four times per year, with the data averaged to give the figures quoted.

The bar chart in the main graphic shows data from the surveys in Northern Ireland.

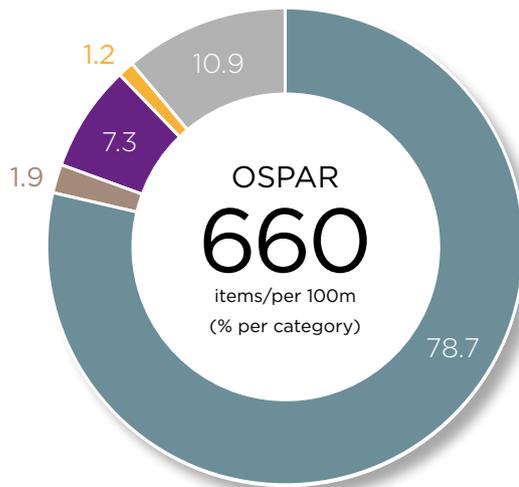


A series of large storms in Northern Ireland in the winter of 2014, before the survey, may have affected the litter observed.

Surveys were not carried out in Northern Ireland during this period



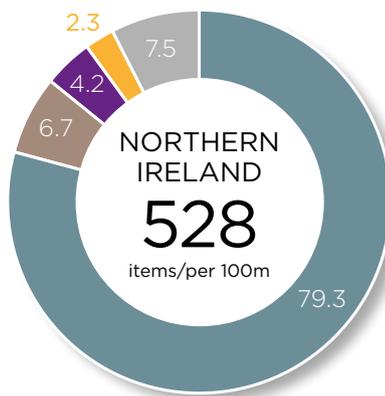
2016



Comparing the average items per 100m from the OSPAR and Celtic Seas regions with Northern Ireland. (OSPAR and Celtic Seas surveys do not include Northern Ireland data).

See page 10 for a map of the regions and countries participating in the surveys.

In total there have been 1,030 surveys in the OSPAR region, and 146 in the Celtic Seas region.



Key

- PLASTIC
- METAL
- SANITARY
- CLOTH
- OTHER

How are we addressing marine litter?

There are a number of exciting and interesting projects which tackle marine litter on our coast. Here is a flavour of some of those and as well as details of how you can be involved.

There is also an agreed set of actions to reduce marine litter taking place across all of the countries signed up to the OSPAR Agreement.

This OSPAR Regional Action Plan is aimed at:

- **preventing and reducing** marine litter pollution in the North-East Atlantic and its impact on marine organisms, habitats, public health and safety and reduce the socioeconomic costs it causes
- **resulting in collective action** to prevent litter entering the marine environment
- **removing litter** from the marine environment where practical and feasible
- **enhancing knowledge** and awareness on marine litter
- **coordinating work** to improve the evidence base on the impacts of litter on the marine environment.



Volunteers with Love Your Lough taking part in a #2minutebeachclean

Newry, Mourne and Down District Council develops a Litter Strategy

The Council has commenced work on a Litter Strategy. The Strategy includes a chapter on Marine Litter, which is in the process of being addressed. The Council is working with local groups, such as 'Love your Lough', and has recently publicised a 2 minute beach clean initiative, at selected beaches in the Council area. Reports to date are that the initiative does make a difference.



Recycling broken nets at Ardglass fishing harbour

The Northern Ireland Fishery Harbour Authority (NIFHA) promotes environmental awareness among the fishing community

NIFHA launched its "Happy Harbours" primary school education programme in 2016. The Programme aims to share the importance of caring for the marine environment with children from the harbour communities. NIFHA also partnered with a Danish organisation to arrange for old fishing nets to be recycled. In all, three 40 foot containers of old nets left Northern Ireland destined to be recycled in Denmark.

NIFHA also manages the Fishing for Litter scheme in Ardglass, Kilkeel and Portavogie.



The Waterbus visit St Columba's school, Kilrea

Northern Ireland Water delivers key environmental messages

NI Water's education team visited a record number of 19,072 pupils from primary and post primary schools across Northern Ireland during the 2015/16 school year to raise environmental awareness and spread the message of what should be flushed down the toilet. NI Water is a member of the Water UK 21st Century Drainage Programme Board and has signed up to and promoted the wet wipes and flushability position statement.



Lagan Rivers Trust purchased a boat to collect rubbish dumped in the river

Live Here Love Here

Live Here Love Here has funded a number of projects in coastal communities throughout Northern Ireland, through the Live Here Love Here Small Grants Scheme. These projects focus on tackling marine litter, providing equipment to enable groups to carry out regular clean ups, and in some cases installing signage in communities which enables groups to share the important message about keeping their coast clean. The Small Grants Scheme will be opening for applications in Spring 2017. If you have an innovative idea to tackle Marine Litter you can submit an application and find out more on www.liveherelovehere.org



Isolated beaches on Rathlin are very difficult to clean

Rathlin Site Management Plan

Rathlin Island is protected as a marine Special Area of Conservation, Special Protection Area and now one of four new Marine Conservation Zones because of its vulnerable or rare marine habitats and species. In July 2016, staff from DAERA Marine & Fisheries Division circumnavigated the island by boat, undertaking the first step in assessing the extent of marine litter around this highly protected area. The location of large pieces of metal, plastic and other manmade items were noted and photographed to inform future decisions by the Rathlin Island European Marine Site Management Group on how to address marine litter.

If you would like to help tackle marine litter, please visit us at www.liveherelovehere.org to learn more about volunteering.

About the data used in this report

All of the data collected in Northern Ireland since 2012 has now been placed online, and can be viewed at www.keepnorthernirelandbeautiful.org. There are online tools to view and examine the data developed by Detail Data (a Big Lottery funded partnership between NICVA and TheDetail.tv).

The figures quoted in this report are for the ten beaches which have been selected for

ongoing study: Figures in previous reports were calculated using data from the fourteen original beaches. As such, previously reported figures will not match the images in this report.

Data for other areas has been taken from the OSPAR database, and is assumed to be a complete record. OSPAR data can be viewed at www.mcsuk.org/ospar.

To find out more about our work with marine litter contact:



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