

Marine Litter Report 2017



**KEEP
NORTHERN
IRELAND
BEAUTIFUL**



**MARINE
SURVEY**

Executive summary

This report summarises the key findings of a quarterly survey of marine litter found on ten reference beaches around Northern Ireland. The data was collected between September 2012 and October 2017, using the internationally recognised OSPAR methodology.

It compares the levels of marine litter on our beaches to levels across the UK and Ireland, and a larger group of beaches across the north east shores of Europe.

During the survey period, an average of 510 items of litter was observed per 100m of beach around Northern Ireland. This constitutes a 3.5% decrease from the previous year's rolling average. Notably, the 2017 winter survey figures were lower than those in previous years, perhaps due

to belated weather events such as 'weather bomb' Storm Doris, which occurred after the winter surveys had been completed.

This year's report focuses on the potential harm posed by litter to marine wildlife. Turtles, whales and sea birds are disproportionately affected by both floating and submerged debris, and with increasing attention on the issue thanks to Blue Planet II, it is time that the issue was highlighted at a more localised level. Furthermore, microplastics have also come under scrutiny, with some studies suggesting that the amount reaching our oceans is equivalent to every person in the world throwing a plastic bag into the sea every week.¹

In 2017 alone, an average of 437 items of litter were found per 100m of beach. 82% of this was made of plastic, with

the remaining 18% accounting for all other materials. Surveyors counted an average of 100 pieces of general plastic and polystyrene for every 100m of beach and 47 pieces of string, cord and rope. Together with 39 caps and lids, these litter items made up 49% of the litter found.

As part of this marine litter programme, 461 people from over 30 different business and community groups have donated 1,345 hours to protecting our beaches. Together they have removed 850 bags of litter, protecting the environment and improving the amenity of beaches in Northern Ireland. Volunteers remove all litter from beaches following each quarterly Marine Litter Survey, helping to protect the local environment and ensuring the validity and reliability of data collection.

The report concludes by showcasing best practice examples for combatting marine litter in Northern Ireland.

Photo: Litter on Ardglass beach.



Foreword

Marine litter, and plastics in particular, continues to pose an unquantifiable threat to humanity. The cost of cleansing in Northern Ireland has risen by £2m since the last report and ratepayers now have to pay a £45m street cleaning bill.

That's about £25 per man, woman and child in Northern Ireland. The cost to our ocean wildlife and habitats may be something that cash alone cannot solve. Despite a lower total count of litter along our coastline in 2017, the average since we began working with the Department for Agriculture, Environment and Rural Affairs, remains at five pieces of litter for every footstep you take or more than 5,000 per kilometre. It is a statistic we should be ashamed of. Thankfully though, there is some good news in the making.

Last year, I wrote in the Foreword that greater public awareness was needed of the consequences of littering. Amazingly, that has happened. Sky Ocean Rescue, Blue Planet II, and the EU's work on the circular economy and inclusion of litter in the draft Waste Directive amendments have all come together to create a powerful and effective force for change, while 'A Green Future: Our 25 Year Plan to Improve the Environment' launched by Theresa May shows governmental support for the same.



The response has been rapid. There are new examples of actions people are taking every day. Mill Strand Primary School banned plastic straws after one boy had stopped using them, having watched a turtle on TV with one wedged up its nose. Ards and North Down Borough Council has passed a motion to ban single use plastics from their own events and meetings. Businesses are responding too. Eleven leading brands, including Unilever, Coca Cola, M&S, Mars and L'Oreal, have committed to using 100% re-usable, recyclable or compostable materials by 2025 at the latest. In addition, work is progressing to utilise alternative materials, rather than relying solely on largely single use, oil based plastics.

By the time you read this report, volunteers will have removed close to 1,000,000 pieces of litter from just the ten

beaches featured in the following pages. These ongoing efforts by thousands of coastal volunteers, involved in Live Here Love Here, are truly heroic. Dare we believe that a seismic shift in how we use Earth's finite resources is taking place?

The onus is now on all of us. As individuals, as consumers and as voters we must use our freedom of choice to help drive the necessary changes that we are just starting to see take shape. Only then will we secure the future health and bounty of our seas, and perhaps, of ourselves.



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'.

LITTER

£36m

Estimated loss to N.I. amenity

£6m

Estimated loss to N.I. tourism

Littered coastal areas leads to loss of revenue and reputation³

Impacts

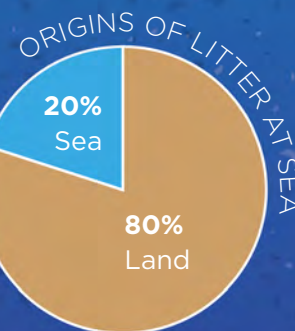
Ingestion

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



5 trillion+

pieces of plastic estimated to be afloat at sea⁴



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



Harm to wildlife

Despite an increase in awareness around the issue of marine litter, it remains a considerable threat to marine wildlife, with plastic the main offender.

As shown in this report, over 80% of litter found on the beaches surveyed was made from this versatile, durable and ultimately very dangerous material. Outlined below are some of the specific threats posed to some of our most beloved and protected marine animals.



Turtles

Recent studies suggest that sea turtles are ingesting plastic at a rate much higher than that of 25 years ago, due mainly to the increase in the amount of plastics ending up in our marine environment.⁵ At particular risk is the Leatherback Turtle, a threatened species that is an occasional visitor to much of the Irish

coastline, including parts of Northern Ireland. They often mistake plastic bags floating in the water for jellyfish, which form an important part of their diet.⁶ The turtle in this picture (below left) was dead when it washed ashore at Portaferry in 2008. During the necropsy, scientists found a plastic bag and length of fishing line in its stomach.

Whales

Big marine mammals are no safer from plastic pollution than their smaller neighbours. In 2016, more than 30 sperm whales were found beached around Europe. Four of the gigantic animals that washed up in Germany had large amounts of plastic found in their digestive systems, including a 13 meter long shrimp fishing net and the plastic cover from a car engine.⁷ In December 2015, a Cuvier's beaked whale was found stranded on the Isle of Skye with over four kilograms of plastic bags in its stomach (below).⁸



Birds

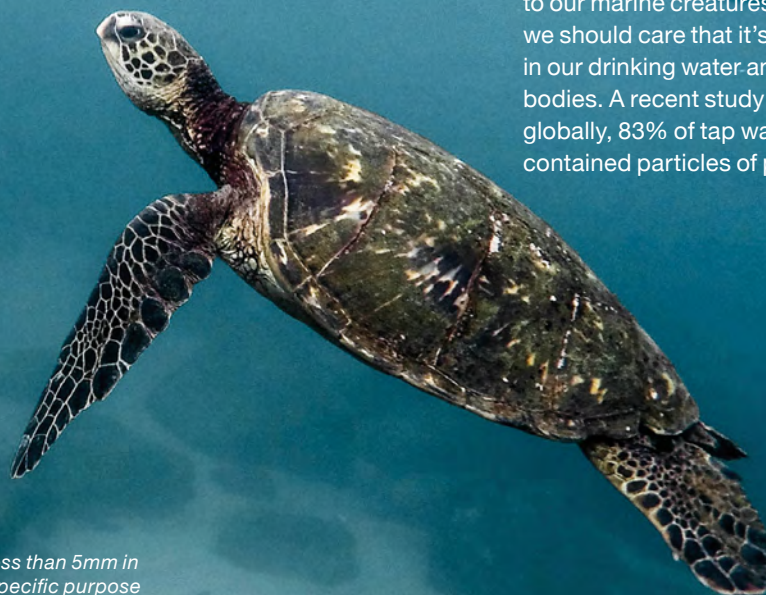
A study published in 2015 suggests that globally 90% of all seabirds have ingested plastic, potentially increasing to 99% by 2050 if no fundamental changes to plastic consumption and waste occurs.⁹ The threat from plastic affects many bird species, including puffins, one of the most charismatic and iconic winged visitors to our coast. Many of the dead puffins found washed ashore on the Scottish Isle of May are found to have plastic fragments in their stomachs.¹⁰ These may have been ingested by the eels and other small fish that the puffins like to feed on, and is a good example of how plastic can accumulate in the food chain.

Microplastics

Plastic is one of the few materials which never degrades completely in the natural environment; instead it breaks down into smaller pieces over a very long period of time.

Once a fragment is less than 5mm in size it becomes a 'secondary' microplastic. However, the problem doesn't end there. Close to one million tonnes of additional 'primary' microplastics come straight from the land and could make up as much as 31% of all plastics in the ocean. This is the equivalent of one plastic grocery bag thrown into the ocean per person, per week worldwide.¹¹ The majority of this appears to come from washing synthetic fabrics and abrasion caused to vehicle tyres while driving.

These microplastics present a couple of key threats. Organisms as small as plankton can ingest them, starting a journey up the food chain that sees plastic accumulating at every level until it reaches our plates. If we don't care about the damage that it's doing to our marine creatures, then perhaps we should care that it's also ending up in our drinking water and therefore our bodies. A recent study showed that, globally, 83% of tap water samples contained particles of plastic.¹²



Primary microplastic: any plastic particle less than 5mm in diameter that has been manufactured for a specific purpose

Secondary microplastic: any plastic particle less than 5mm in diameter that has derived from the fragmentation of a larger item

ESTIMATED GLOBAL RELEASES OF PRIMARY MICROPLASTICS TO THE WORLD OCEANS: 0.9 MILLION TONNES PER ANNUM

By source (%)



SYNTHETIC TEXTILES



TYRES



CITY DUST



ROAD MARKINGS



MARINE COATINGS



PERSONAL CARE PRODUCTS



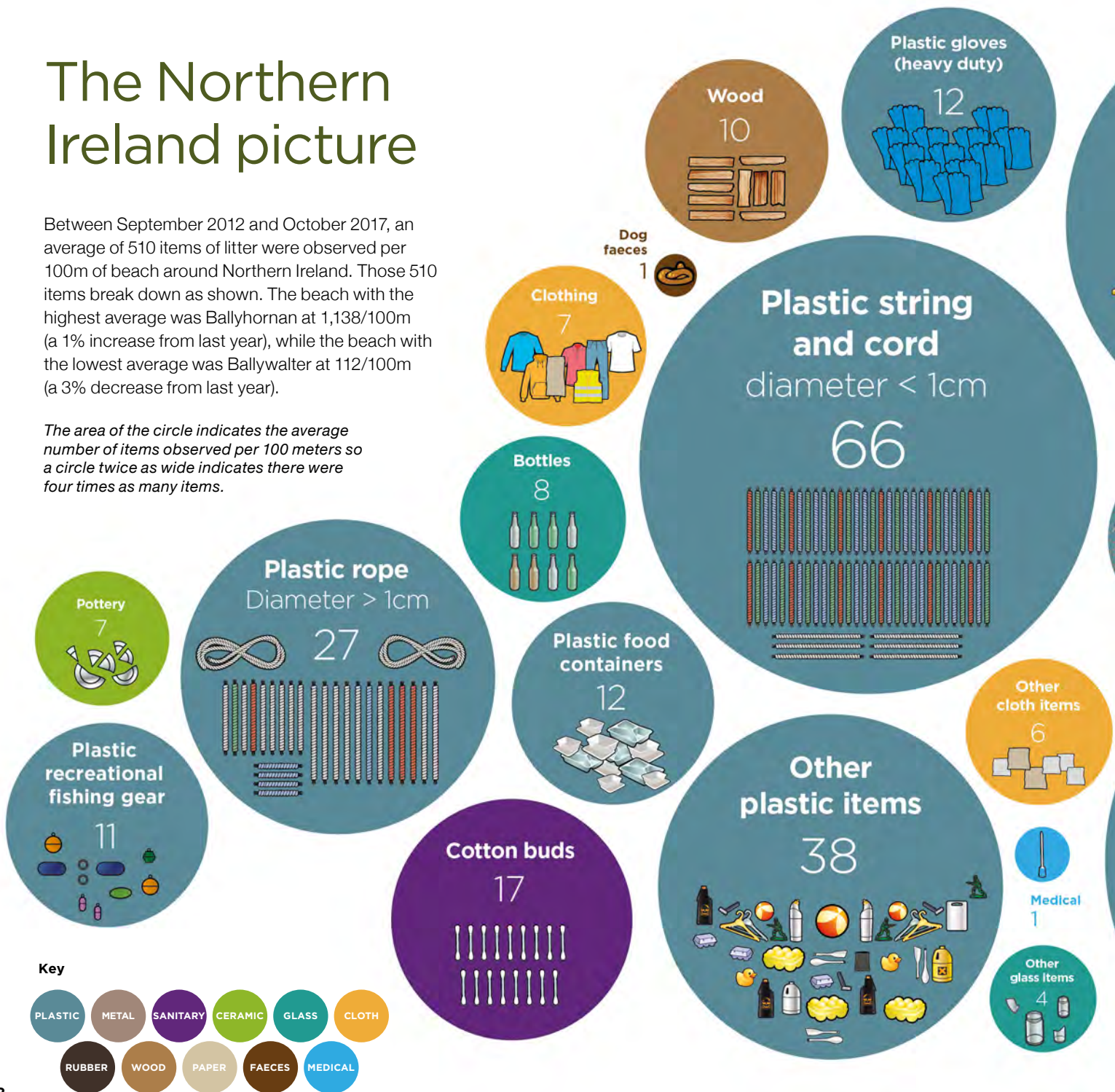
PLASTIC PELLETS

Source: IUCN Primary Microplastics in the Oceans: a Global Evaluation of Sources, 2017

The Northern Ireland picture

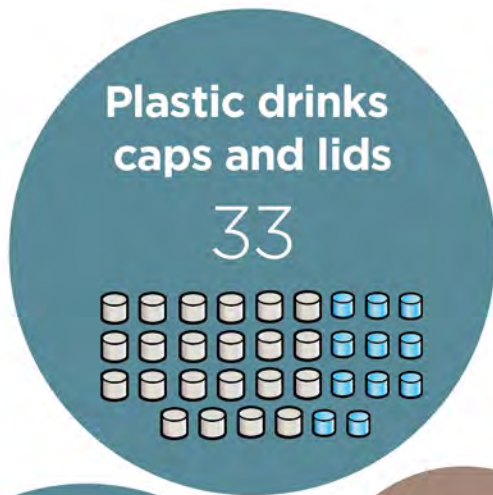
Between September 2012 and October 2017, an average of 510 items of litter were observed per 100m of beach around Northern Ireland. Those 510 items break down as shown. The beach with the highest average was Ballyhornan at 1,138/100m (a 1% increase from last year), while the beach with the lowest average was Ballywalter at 112/100m (a 3% decrease from last year).

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.



Key





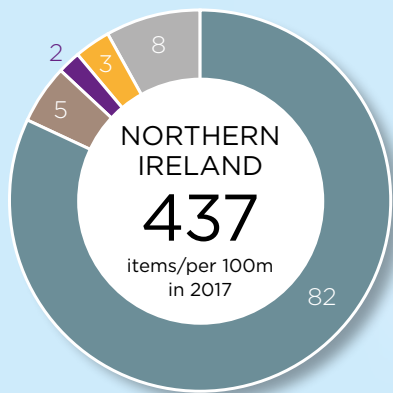
Survey comparisons

The data in this report is sent to the OSPAR Commission for their marine environment monitoring programme, which takes in the north east shores of Europe. The level of surveying is highly variable though, with some countries hosting more permanent survey sites than others. The results tend to be more robust where more data is provided, but comparisons between different OSPAR areas are still useful and interesting.



Key

- NORTHERN IRELAND BEACHES
- CELTIC SEA BEACHES



Comparing the average items per 100m from the Celtic Seas regions with Northern Ireland.

Key

- PLASTIC
- METAL
- SANITARY
- CLOTH
- OTHER

In 2017 the OSPAR Commission published the "Intermediate Assessment". The document provides background information and assessments of human pressures on the marine environment and biological diversity of the OSPAR Maritime Area.

A copy of the report is available from:
<https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/introduction/>

Volunteers

RUNKERRY STRAND

- Include Youth
- Northern Ireland Environment Support Team
- Causeway Coast and Glens Heritage Trust
- Mars Wrigley Confectionery

👤 23 🕒 104 🗑️ 46

WHITE PARK BAY

- Friends of White Park Bay (multiple clean ups)
- Danske Bank
- Causeway Coast and Glens Heritage Trust

👤 29 🕒 72 🗑️ 30

RATHLIN ISLAND

- Rathlin Island Community and Development Association (multiple clean ups)
- St Mary's Primary School
- Marine Conservation Society

👤 32 🕒 68 🗑️ 33

BALLYWALTER

- Strathearn College
- Ballywalter Community Action Group (multiple clean ups)
- Include Youth

👤 50 🕒 172 🗑️ 49

PORTAVOGIE

- Glastry College
- Portavogie Action Group
- St Columba's
- Strangford College

👤 79 🕒 233 🗑️ 88

BALLYHORNAN

- Ballyhornan Community Association
- Strangford Lough and Lecale Partnership Volunteers
- Surfers Against Sewage
- Coca-Cola HBC

👤 100 🕒 265 🗑️ 160

Key

All data for 2017

BEACH SURVEYED

- Volunteer group(s) who cleaned them

👤 Number of volunteers

🕒 Total volunteer hours

🗑️ Bags of litter

Total (for 10 beaches)

👤 461

🕒 1,345

🗑️ 850

THESE FANTASTIC VOLUNTEERS ARE INDISPENSABLE TO THE PROJECT, AND WE THANK THEM.

ROSTREVOR

- Love Your Lough
- Probation Board NI (multiple clean ups)
- Cahir Linn Oysters Limited

👤 34 🕒 104 🗑️ 82

KILKEEL NORTH

- Mourne Heritage Trust Youth Rangers
- Team CITO
- Probation Board NI (multiple clean ups)

👤 35 🕒 143 🗑️ 172

TYRELLA

- Danske Bank
- Clanrye Group
- Hamilton Cooper Family
- McDonalds Downpatrick

👤 61 🕒 142 🗑️ 90

ARDGLASS

- Citi Belfast
- Strangford Lough and Lecale Partnership Volunteers
- Fishing for Litter Volunteers (multiple clean ups)

👤 18 🕒 42 🗑️ 100

The plastic problem

In 2012, 74% of the litter found on the beaches in Northern Ireland was made of plastic. This year, that figure is sitting at 82%. As the volume of plastic being

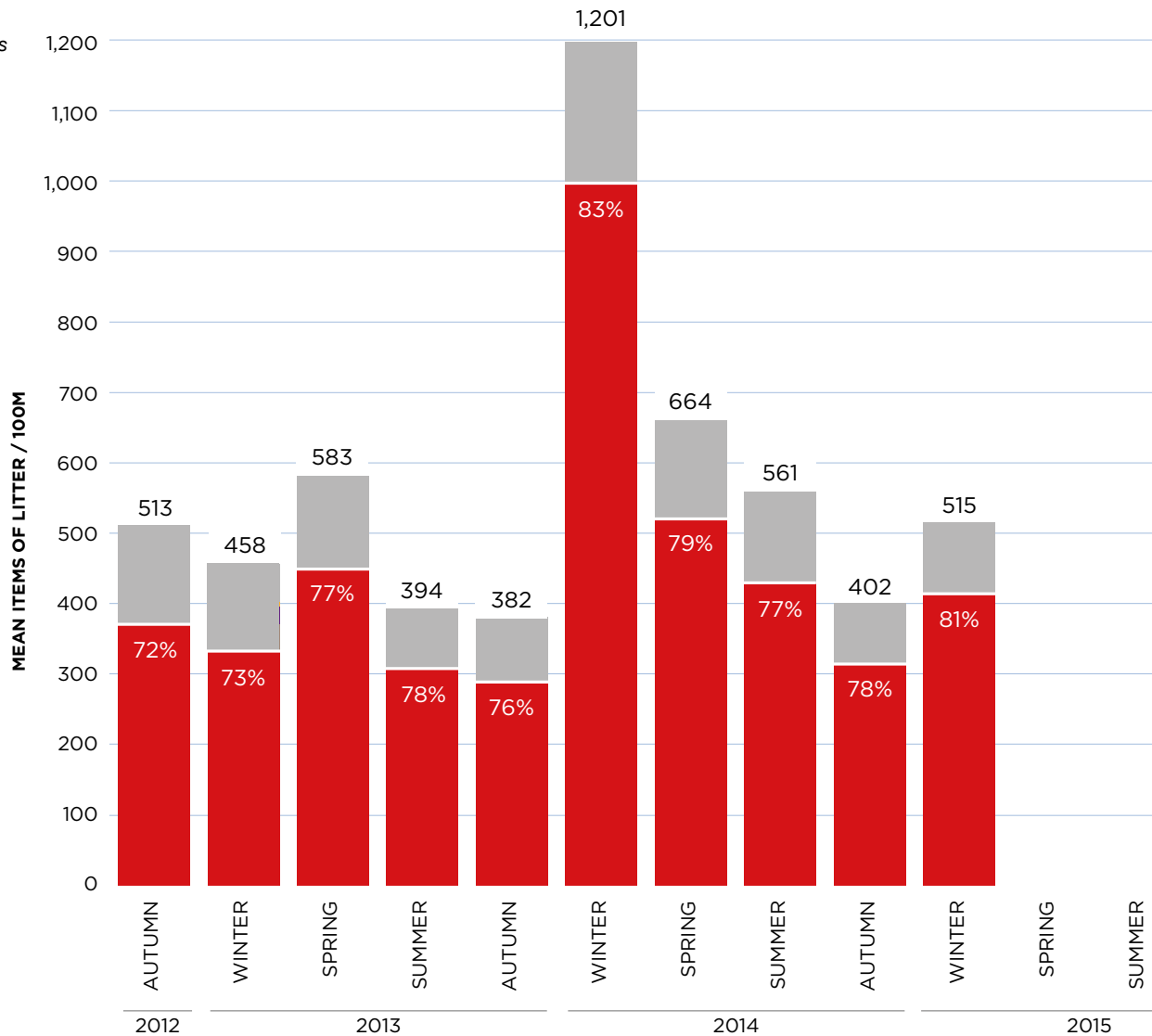
produced grows every year, we need to become more responsible with how we dispose of it and more aware of its effects on our environment.

Key

- PLASTIC
- OTHER

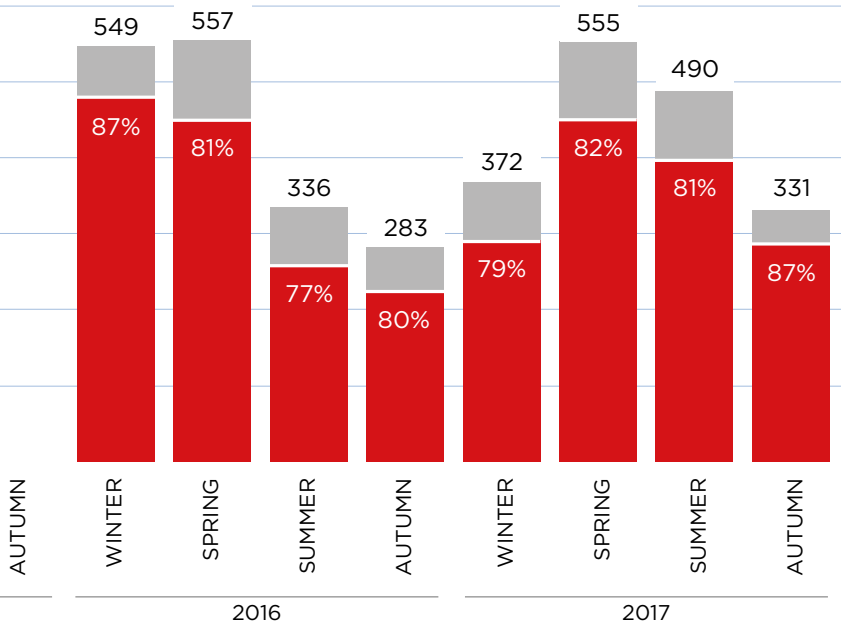
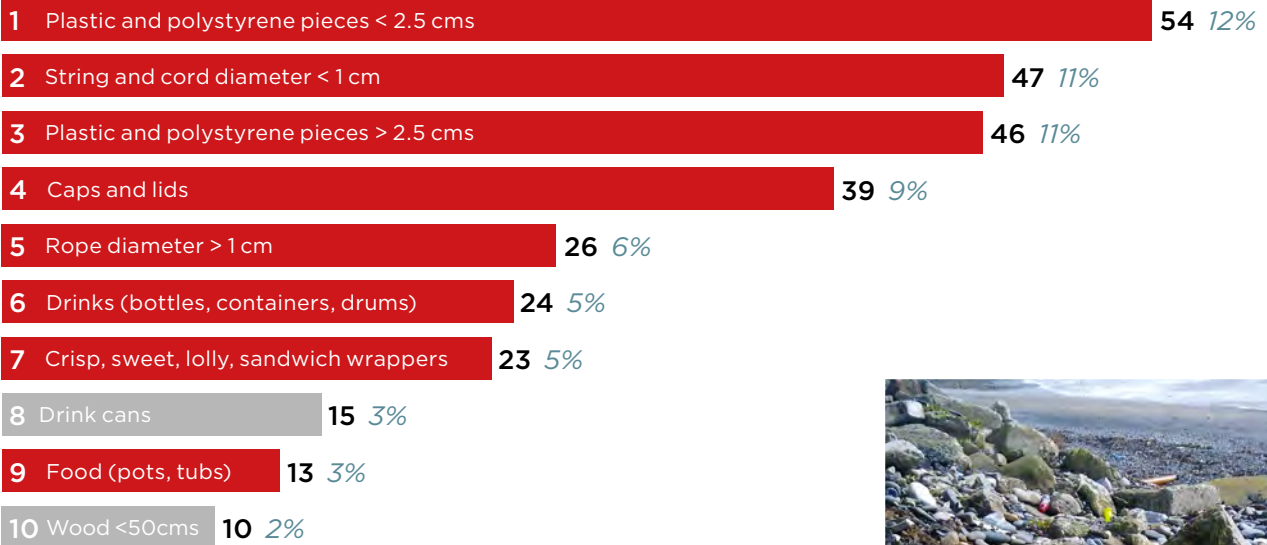
A series of large storms in Northern Ireland in the winter of 2014, before the survey, may have affected the litter observed.

Surveys were not carried out in Northern Ireland during the period Spring–Autumn 2015.



2017 TERRIBLE TOP TEN

Litter types: average pieces per 100 metres (% of total)



An abundance of litter, predominantly plastic bottles, washed up on Killeel beach, one of the 10 beaches used for the Northern Ireland Marine Litter Survey.

Tackling marine litter through environmental leadership

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



Charlie's quest

Five year old Charlie (left) became interested in marine litter when, aged four, he overheard his parents discussing the issue. In March 2017, Live Here Love Here equipped the tenacious young environmentalist with a litter picker (specially designed for kids!) and Charlie's quest began. Having recently finished his 25th beach clean, Charlie now has an enormously popular Facebook page "Charlie's Quest to Save Our Oceans" where he documents all his efforts and encourages others to get involved and make a difference. He has 300 avid followers and attracts comments from all over the world, sharing links, advice and offers of support for all his hard work. It just goes to show that age is no barrier to action when there's passion involved.



The inspirational Eric

Eric's story starts in 2008, when he got involved with the Cloughey and District Community Association and since then he has developed and organised a number of extremely successful environmental programmes, including regular beach clean-ups and a comprehensive Green Coast management plan for the area. He has even initiated a Peninsula Coastal

Erosion Group in an attempt to bring together representatives from every community along the Ards Peninsula so as to better manage their combined length of coastline. Eric (below, left) has also built strong relationships with local schools and Scout groups, identifying that all of his work and efforts are futile if the younger generation doesn't understand or care about the value of our local natural resources.

Council supports the reduction of single use plastics



In November 2017, Ards and North Down Borough Council adopted a motion to reduce their waste, end their reliance on plastic, support the end to use single use plastics and promote the use of eco-friendly alternatives across the Borough. Council has now begun to take steps concerning the reducing use of plastics at meetings and events through the use of reusable and or recyclable alternatives. Furthermore, in a groundbreaking programme the Council has delivered an Environmental Education Programme to 1,800 year eight pupils from across the Borough.

Local school's plastic straw ban

In late 2017, Mill Strand IPS became the first school in Northern Ireland to ban all plastic straws. It followed a conversation between a teacher and young boy, who had been upset by an image he had seen on social media of a turtle with a plastic straw stuck up its nose. This has resulted in 500 fewer straws being used every week.

The Clean Coasts Programme

The Clean Coasts Programme is one of the volunteering opportunities delivered through Live Here Love Here. To learn more and to organise a coastal or inland waters clean up, please visit www.livehereandlovehere.org.



Footnotes

- 1 Boucher, J. and Friot D. (2017). Primary Microplastics in the Oceans: A Global Evaluation of Sources. Gland, Switzerland: IUCN. 43pp
- 2 DOI: 10.1126/science.aaa7848
- 3 Sherrington, C., Darragh, C. and Crosswell, S. (2015) Exploring the Indirect Costs of Litter in Northern Ireland. Report for Keep Northern Ireland Beautiful from Eunomia.
- 4 <http://dx.doi.org/10.1371/journal.pone.0111913>
- 5 Schuyler, Q., Hardesty, B., Wilcox, C. and Townsend, K. (2013). Global Analysis of Anthropocentric Debris Ingestion by Sea Turtles. Conservation Biology, Vol 28, 1, 129-139
- 6 Tiwari, M, Wallace, BP & Girondot, M. (2013). Dermochelys coriacea (Northeast Indian Ocean subpopulation). IUCN Red List of Threatened Species. Accessed at www.iucnredlist.org, on 30th January, 2018.
- 7 Mailk, W. (31st March, 2016) "Sperm Whales Found Full of Car Parts and Plastics". Accessed at www.news.nationalgeographic.com on 30th January, 2018
- 8 (21st June, 2017) "Plastic bags found inside whale after stranding on Skye". Accessed at www.bbc.co.uk/news on 30th January, 2018
- 9 Wilcox, C., Van Sebille, E. and Hardesty, B. (2015) Threat of Plastic Pollution to Seabirds is Global, Pervasive and Increasing. PNAS, 112 (38) 11899-11904
- 10 Rakowski, S. (26th March, 2015) "Scottish Puffins Found with Plastic Pellets in their Stomachs". Accessed at www.fauna-flora.org on 30th January, 2018
- 11 Boucher, J. and Friot D. (2017). Primary Microplastics in the Oceans: A Global Evaluation of Sources. Gland, Switzerland: IUCN. 43pp
- 12 Carrington, D. (6th September, 2017). "Plastic fibres found in tap water around the world, study reveals". Accessed at www.theguardian.com on 30th January, 2018

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 may not match those 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.

OSPAR

OSPAR is the mechanism by which 15 Governments and the EU cooperate to protect the marine environment of the North-East Atlantic.

OSPAR started in 1972 with the Oslo Convention against dumping and was broadened to cover land-based sources of marine pollution and the offshore industry by the Paris Convention of 1974. These two conventions were unified, up-dated and extended by the 1992 OSPAR Convention. The new annex on biodiversity and ecosystems was adopted in 1998 to cover non-polluting human activities that can adversely affect the sea.

Marine Strategy Framework Directive

The Marine Strategy Framework Directive requires Member States to achieve good environmental status (GES) in their marine waters by 2020. GES involves protecting the marine environment while using marine resources sustainably.

The Directive defines GES in terms of 11 descriptors. Descriptor 10 requires litter to be at levels where the “properties and quantities of marine litter do not cause harm to the coastal and marine environments”.

Northern Ireland Marine Litter Strategy

The Northern Ireland Marine Litter Strategy was published in 2013. It is a co-ordinated response to addressing the problem of marine litter in Northern Ireland. It aims to reduce the levels of litter entering the sea and remove litter which is already there.

The Strategy recognises that we need to change our behaviour towards littering and brings together measures for education, effective enforcement, the provision of robust coastal infrastructure and the collection of reliable data.

The Strategy aims to tackle the problem through partnership working. Central and local government, the business community, the voluntary and community sector, and individuals are working together to address the scourge of marine litter.

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



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