

**years** 

hundreds of organisations, thousands of volunteers, trillions of nurdles, one goal

Left: The NGO ESDO found almost 100 nurdles on a sand beach in Banglade Photo credit: ESDO Bangladesh





Left: NGO A Rocha Kenya have conducted 14 nurdle hunts since 2018 with local com Photo credit: Eric Thuranira, A Rocha Kenya

Far left: Nurdle hunting along the Firth of Forth, Scotland – a hotspot of nurdle pollution. Photo credit: Melanie Pyne

# Community science reveals scale of global plastic pollution

Over 7000 nurdle hunts have been organised by volunteers and organisations around the world since Fidra launched the Great Nurdle Hunt 10 years ago. Nurdles are plastic pellets produced by the plastic industry, with nurdle hunts uncovering plastic pellet pollution worldwide from Canada to Kenya. Over 20,000 people have taken part by collecting data, photos and stories. This is a collective call for more action from industry and governments. We want to thank all nurdle hunters for their amazing work over the last 10 years! Here's what we found so far...

### **HOW TO NURDLE HUNT**

**Choose a location** 

**Search for nurdles** 

**Count any nurdles** 

Record how long you لتر searched and hov many people searched





Submit your finds at:



#### Tiny plastic, BIG problem

Nurdles are tiny lentil size plastic pellets, they are the feedstock for the whole plastic industry and are used to make almost all plastic products. Every year trillions of nurdles spill from factories, ships, lorries, trains and industrial sites into the environment<sup>1</sup>. Since starting the Great Nurdle Hunt over 4.5 million tonnes of nurdles have flooded into the environment from the plastic supply chain, enough to cover an area the size of Bangkok!

As well as ongoing nurdle pollution from the plastic supply chain there have been 16 documented large scale shipping incidents and 6 major train derailments, but many more are unreported.

#### A toxic combination

Once in the environment nurdles are impossible to completely clean up, with devastating impacts. Animals can mistake nurdles for food, causing them to starve and suffer organ damage, while transferring toxic chemicals and plastics into the food chain<sup>2</sup>. As nurdles breakdown they release ever smaller plastic pieces, which can enter bodily tissues and disrupt their function3,4.

Nurdles are made from a cocktail of chemicals which can leach into the environment, these chemicals are linked to many health issues in humans and animals, from cancer and hormone disruption to impacting growth and development of marine animals like sea urchins<sup>5,6</sup>. Nurdles can also accumulate chemicals, bacteria, pathogens and invasive species on their surface and carry them around the world, e.g. harmful E. coli7. The buildup of nurdles in the environment over time or from a big spill can have devastating impacts on local communities, fishing and tourism1. All this makes nurdles a danger not just to wildlife but humans too

#### From Scotland to South Korea

The Great Nurdle Hunt project began in the Firth of Forth, on Scotland's east coast, UK, with the aim of collecting evidence of nurdle pollution to drive change. Since then, volunteers have been reporting nurdles worldwide, from New Zealand to Norway. We've used the data you submitted to engage industry and policy makers in discussions on how to prevent nurdles entering the environment, for example by adopting a Supply Chain Approach (see p6).

We launched the Great Global Nurdle Hunt in 2019 and it now spans all 7 continents! The Great Global Nurdle Hunt continues to grow with new volunteers and organisations joining every year. In 2022 more nurdles were found than ever before, showing that industry's voluntary efforts are not enough to halt the problem and regulation is needed (see p6). 2023 saw major nurdle spills in France, Dubai and India. With UN Global Plastic Treaty negotiations underway, nurdle hunt data shows urgent action is vital.

#### Nurdle hunts bring data and people together to end plastic pellet pollution

Organisations around the world are using the nurdle hunt data collected by volunteers to raise awareness and push for change from their governments and industry. The hunts themselves received attention from school children, politicians and the media while the data is used to inform reports, science and policy makers. The connections made through nurdle hunts have supported local, national and international networks of NGOs to come together to call for change.

- . https://hub.nurdlehunt.org/resource/oracle-mapping-the-global-plastic-pellet-supply-chain/
  . https://doi.org/10.1016/j.jhazmat.2023.131090 3. https://doi.org/10.3390/nano11020496
  . https://doi.org/10.1021/acs.est.9b01517 5. https://doi.org/10.1016/j.scitotenv.2022.160901
  . https://www.genevaenvironmentnetwork.org/resources/updates/plastics-and-health/
- https://www.genevaenvironmentnetwork.org/resources/u/ 7. https://doi.org/10.1016/j.marpolbul.2019.01.011

#### **Links and Resources**

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If you want to organise a nurdle hunt, submit your finds or see nurdle finds worldwide visit: www.nurdlehunt.org.uk

If your organisation want to find out more about other ways to end pellet pollution visit the NGO information hub: hub.nurdlehunt.org





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# A global movement to end nurdle pollution

#### Impacted communities call for change

With volunteers and organisations from 73 countries taking part, the Great Nurdle Hunt is a truly global movement. Organisations have used nurdle hunts to help raise awareness and gather evidence of nurdle pollution for use in advocacy and campaigns demanding action around the world.

#### Meet the nurdle hunters

We want to introduce some of the amazing organisations and individuals and their work to end nurdle pollution. We couldn't include all 20,457 volunteers that have taken part over the last 10 years but we want to thank each and every one of you!

Kenya

#### Using nurdle hunts to educate others A Rocha International – Robert Sluka

"We can't claim to love our neighbour and then pollute our neighbour's beach through our direct actions or unwillingness to resist the plastic system."

A Rocha have taken part in the Great Global Nurdle Hunt since 2015 as part of their environmental education programs, using nurdle hunts to engage and educate groups about plastic pollution in the USA, Kenya, France and beyond!



Photo credit: Eric Thuranira, A Rocha Kenya



**USA** 

#### Raising awareness of the impacts of pellet spills Plastic Free Seas – Dana Winograd

Following a massive nurdle spill in Hong Kong in 2012, Plastic Free Seas Hong Kong set out "to change the way people view and use single-use plastic in society". Since taking part in their first Great Global Nurdle Hunt in 2020, they have used nurdle hunts to help educate the public, schools and universities about plastic pollution and the devasting impacts spills can have on wildlife and livelihoods.

"They are found on every beach (some more than others). After the pellet spill, many fish in fish farms around Hong Kong had to be killed as they were full of pellets."



Photo credit: Dana Winograd, Plastic Free Seas

# Australia 👬

#### Nurdle hunts to engage industry Tangaroa Blue-Heidi Tait

Heidi Tait, CEO of the Tangaroa Blue Foundation, is no stranger to nurdles, having first found them in 2007.

"We were unsure what they were to start off with, and then when we discovered that they were feedstock from the plastics industry we started to look at where industrial areas were in the state of Western Australia."

"We now record plastic feedstock loss across the country, and have seen the impact on all types of environments from creeks and rivers to bays and open facing beaches, both close to cities and remote areas thousands of kilometers away from any type of urban areas – nowhere is immune to this form of plastic pollution."



Photo credit: James McPherson

Tangaroa Blue first joined the Great Nurdle Hunt in 2013, and have continued to take part as part their excellent Australian Marine Debris Initiative (AMDI).

"There is a great opportunity to **educate the community, industry and government on this type of plastic pollution by participating in the Great Nurdle Hunt.** Because of their size, many people don't realise that plastic pellets are primary microplastics and their loss is industrial pollution and not just plastic items breaking up into smaller pieces."

Tangaroa Blue have used the Great Global Nurdle Hunt and AMDI events and data to engage and collaborate with industry and government. Heidi is making the case to "prevent the most preventable type of plastic pollution" and is calling for regulation and enforcement.

"The loss of plastic feedstock from the plastics and logistics industries is **totally preventable**, but needs the focus of both industry and government to ensure that best practices are mandatory within the industry, that loss of feedstock will result in a strong compliance response, and that **industry must be held accountable**."



Photo credit: Tangaroa Blu

The Great Global Nurdle Hunt: 10 Year Report



# Preventing pellet pollution requires policy change The Good Karma Project – Jordi Oliva

The Good Karma Project aims to raise awareness of plastic pollution, while also undertaking citizen science to investigate plastic pollution in the Mediterranean region. They began tackling nurdle pollution following a huge outflow of pellets from local industry which significantly impacted nearby beaches.

"...all the beach looked like it had been snowing, plenty of plastic pellets and we felt like we had to do something about it."

In their first Great Nurdle Hunt in 2021 they collected more than **700,000 nurdles** in only a few hours! But this was just a fraction of the pollution in the area.

"We estimated that there were **90-120 million of these pellets just on a single beach** which is right in front of the biggest petrochemical complex in southern Europe where more than 2 million tonnes of pellets are being manufactured every year."



Photo credit: The Good Karma Project

The Good Karma Project has used nurdle hunt events and data in their campaigns, pushing for industry and policy makers to address nurdle pollution. They found the Great Nurdle Hunt can "help put on some pressure on the company and local administration to start moving, to start working and making steps to solve the issue."

#### Jordi's message to policy makers is simple:

"Start regulating the topic, start solving the issue at its source. We don't want to be cleaning the beaches..."

"We don't want to hear about cleaning up the beaches, we want to hear about regulating and being mandatory to join this regulation and external audits."



Photo credit: Albert F, The Good Karma Project

# government Wardie Bay B Karen has been taking one of these nurdle he a million nurdles in ju

Scotland

#### Communities call on government for change Wardie Bay Beach–Karen Bates

Karen has been taking part in nurdle hunts since 2017. During just one of these nurdle hunts, Karen and other volunteers **collected half** a **million nurdles in just a few hours** from a nature reserve close by the industrial area of Grangemouth in the Firth of Forth, Scotland, UK.

"A fine for leaving dog waste at the site was greater than anything imposed for the slick of plastic that was present on the reserve. I just couldn't drop it after that."

The results of nurdle pollution in the area are clear to see.

"Nurdles are constantly on the breakwater, within the washed up seaweed and embedded in soil and sand." The build up of nurdles in the environment from decades of spills is in the earth itself. "They are part of the landscape – a layer in the sediments".



Photo credit: Karen Bate

Raising awareness of the issue and collecting evidence of the extent of nurdle pollution is vital to helping to stop the spills locally and across the world.

"Each time I've pointed out nurdles to people, they are **shocked and appalled** that this microplastic should be part of the landscape. It's an insidious pollution, that like everything else, is not so noticeable diluted in the environment, but we are getting to saturation point in the Firth of Forth and elsewhere."

Karen has taken the issue of nurdle pollution to the Scottish Government, demanding action to address the issue impacting local communities, hold industry to account and classify nurdles as a hazardous waste material. However, like elsewhere in the world Karen finds the government response to have been frustratingly slow. Through evidence, gathered by nurdle hunt volunteers, we can all help counter attempts to down play the issue or divert responsibility from the polluters, making clear there is no excuse for lack of action.

"There was an expressed commitment to driving a Circular Economy model in Scotland, meanwhile, what we actually see is industry continuing to use the most harmful fossil fuel raw materials to escalate pellet production with **no accountability for spillage** and no action on that front either to clean up."

"Volunteers cannot be expected to do the dirty work of industry."



Photo credit: Karen Bates



# OF NURDLE HUNT DATA REVEALS THE SHOCKING SCALE OF GLOBAL NURDLE POLLUTION



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The data collected by volunteers has been fundamental to demonstrating the global scale of nurdle pollution. So what can 10 years of nurdle data can tell us about global nurdle pollution?

THE GREAT NURDLE HINT BEGAN IN THE FERTIN OF FORTH, PERTIN OF FORTH, PER







11 MONTHS







**⊙** @nurdlehunt × @greatnurdler ⊙ @greatnurdler **⊙** @greatnurdlehunt ▶ @fidra2970



# Solutions to end nurdle pollution

#### Why has policy not stopped nurdle pollution so far?

Since nurdle pollution was first identified in the 1970s, a number of industry initiatives, schemes and some government regulations have tried to address the issue<sup>8</sup>. But nurdle pollution, also known as pellet pollution, continues, showing so far these initiatives are ineffective in addressing sources of nurdle pollution. Often these initiatives are voluntary, lack enforcement, or focus on limited sections of the global nurdle supply chain. Most importantly there is currently no global requirement to prevent nurdle loss or report losses. This means that spills continue to occur throughout the nurdle supply chain.



Taking part in the Great Nurdle Hunt brings together NGOs and individuals from around the world in calling for robust policy to address nurdle pollution, from local beaches to the United Nations.

Nurdle hunts are a great way to draw attention to local and global nurdle pollution and educate the public and decision makers on the issue. For example nurdle hunters have:

- Invited policy makers to nurdle hunts to see nurdle pollution and its impacts firsthand
- Invited the media to nurdle hunts to raise awareness to a wider audience
- Collected photos, videos, testimonials to use in publications, campaigns and communications
- Involved the local communities to help gather more voices to call for change and educate more people about nurdle pollution.

It is really important to join the Great Nurdle
Hunt because we are all working together
on the same issue of plastic pellet pollution
and all together we can raise our voices and
collect bigger data with a better quality to be
compared with other hotspots, it's a great tool
for monitoring but also for using best practices.

Jordi Oliva, The Good Karma Project, Spain

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## Raising awareness through media and public engagement

Collectively we have taken nurdles into parliaments, courtrooms and to the media to increase awareness and present evidence of the issue to decision makers. Data collected by nurdle hunters has helped inform briefings, submissions, consultations and reports, all important tools in driving change.



A nurdle hunter being interviewed by the BBC in 2017. Credit: Fidra, 2017.

#### Legislation needed to address nurdle pollution

Efforts to address nurdle pollution up to now have been ineffective in stemming the flow of nurdles into the environment. Using nurdle hunt data Fidra recently published a new report by Oracle Environmental Experts Mapping the Global Plastic Pellet Supply Chain showing everywhere is at risk from nurdle pollution<sup>1</sup>. Robust national legislation and international policy is needed to prevent nurdle pollution.

#### **KEY POLICY ASKS:**

To prevent nurdle pollution at all points along the plastic pellet supply chain, NGOs around the world are calling for:

- A legislated supply chain approach, requiring all those handling pellets to prevent pellet loss at all points throughout the global supply chain. This requires robust standards, certification schemes with third party audits and a public register to communicate compliance all backed by legislation and enforcement
- Classification of pellets as hazardous to ensure safer stowage and packaging of plastic pellets to prevent spills at sea and during transportation
- Mandatory reporting of plastic pellet spills at all points along the global supply chain
- Protocols and compensation in place if spills do occur to ensure a swift response and that the polluter pays
- National legislation and enforcement in conjunction with international agreements, such as the UN Global Plastics Treaty, to prevent nurdle pollution.

## Operation Clean Sweep fails to prevent pollution globally

Operation Clean Sweep (OCS) is an industry initiative aimed at reducing nurdle pollution. This voluntary scheme aims to provide guidance to plastic producers, with signatories committing to 'zero pellet loss' over an unspecified period9. However in most countries the scheme is voluntary, lacks third party audits and there are no penalties for failing to comply. As a result, OCS has had limited uptake and little impact in addressing nurdle pollution around the world.

#### **Setting the standard**

The British Standard Institution (BSI) has published the world's first nurdle handling specification – PAS 510:2021<sup>10</sup>. It can be applied across the plastic supply chain and audited against, with requirements for good practice to be implemented. This provides an example of good practice and supports enforcement. However, PAS 510:2021 is voluntary and should be supported by a certification scheme and legislation to ensure uptake by the plastics industry.

The Great Global Nurdle Hunt: 10 Year Report

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#### **Governments commit to** tackling nurdle pollution

Some governments have sought to address nurdle pollution. The Convention for the Protection of the Marine Environment of the North-East Atlantic (i.e. OSPAR) is signed by 15 governments and aims to tackle marine pollution. In 2021 OSPAR signatories agreed to develop certification and guidance to prevent nurdle pollution, with an aim of zero pellet loss<sup>11</sup>. The regulations are legally binding to signatories, however a certification scheme in line with OSPAR recommendations has not yet been taken up by industry.

In the European Union (EU), proposed legislation for regulation of pellet loss was published in October 2023, a welcome step but it currently does not address all the sources of nurdle loss<sup>12</sup>. Separate EU reporting requirements for pellet loss at industrial sites will also come into force from 2026. Meanwhile, in France, Decree No.2021-461 was implemented in 2021 to reduce nurdle loss from production sites, during transport and handling<sup>13</sup>. However, this will not apply to smaller plastic producers, leaving opportunity for spills to continue.

State legislators in the USA have taken steps to reduce nurdle pollution. In California companies handling nurdles must acquire storm drain permits, which aims to reduce loss of nurdles through drains. In Texas, the law requires plastic manufacturers to prevent nurdle loss from manufacturing sites. These are important steps in preventing nurdle pollution but only cover a small part of the plastic pellet supply chain.

#### Solutions to nurdle pollution

It has become clear that to address nurdle pollution mandatory requirements for prevention of pellet loss and reporting of spills must be implemented across the global pellet supply chain.

Worldwide organisations are advocating viable national and international solutions to stop pellet pollution such as a supply chain approach, stricter labelling of pellets as marine pollutants and limits on production.14, (Figure 1)

#### A Global Plastic Treaty needs to address nurdle poliution

The United Nations (UN) has committed to deliver an international legally binding instrument on plastic i.e. 'the Global Plastics Treaty' (GPT). This treaty aims to address plastic pollution globally across the full plastic life-cycle. Many nations and NGOs have called for the inclusion of measures to address nurdle pollution in a final treaty, recognising this as a major source of upstream plastic pollution. This would be a significant step in developing global regulation to address nurdle pollution. With the final treaty expected in 2024 it is important to continue to call for inclusion of nurdles during the ongoing negotiations.



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#### What is the supply chain approach?

A supply chain approach acknowledges the scale of the industry and that all components within the chain need to have standardised measures in place to stop pellets being spilled into the environment. This requires:

- · Responsible handling of pellets, this includes ensuring that specialist equipment, spill kits and trained professionals are in place where pellets are handled
- Mandatory auditing, compliance checks and enforcement of responsible pellet handling
- Communications along supply chains of compliance with pellet loss prevention measures

The only way to guarantee a supply chain approach is implemented effectively is through legislation (Figure 2).

#### Stopping nurdle spills at sea

Spills from ships as nurdles are transported across the world are a major source of acute pellet pollution. Currently pellets are not subject to measures to prevent them spilling in the event of an incident, with no protocols in place for clean up or compensation should an incident occur.

NGOs and governments are calling on the International Maritime Organisation (IMO) to prevent further pollution by classifying plastic pellets as marine pollutants at sea so that they can be labelled, stored and transported more safely and any spill can be dealt with swiftly.

#### The IMO must ensure:

- · Safer stowage of pellets below deck when shipped
- Improved packaging that withstands tears and damage at sea
- · Transparency between ship operators and cargo owners so crews are aware pellets were onboard

2023 saw the IMO hold initial negotiations aiming to address nurdle pollution at sea during transportation by ships, an important first step.

<sup>8.</sup> https://hub.nurdlehunt.org/resource/stemmingthetide/

<sup>8.</sup> https://www.opcleansweep.org/manual/
9. https://www.opcleansweep.org/manual/
10. https://www.bigroup.com/en-CB/standards/pas-5102021/
11. https://www.fauna-flora.org/wp-content/uploads/2023/05/FF\_Plastic\_Pellets\_Report-2.pdf
12. https://environment.ec.europa.eu/publications/proposal-regulation-preventing-pellet-losses\_en
13. https://www.legifrance.go.gout.fr/jorf/id/JORFTEXT000043388114
14. https://cedelft.eu/publications/preventing-spills-of-plastic-pellets/

# **The Great Global Nurdle Hunt 2023**

You can nurdle hunt anytime, anywhere but each year we ask volunteers to help us get a snapshot of the global scale of pollution through the Great Global Nurdle Hunt.

In 2023, three new countries participated in the Great Global Nurdle Hunt: Ghana, Tanzania and Namibia! Dedicated volunteers took part in 175 nurdle hunts from the 1st-31st October 2023 as part of the annual Great Global Nurdle Hunt. Nurdles were found at 93% of all sites surveyed increasing from previous years (90% in 2022, 79% in 2021 and 87% in 2020).

This shows that nurdle pollution around the world remains high, further evidence that voluntary efforts to prevent nurdle pollution have been ineffective and that legislation is the only way to stop nurdle pollution across the global supply chain. 55% of nurdle hunts found 100+ nurdles, across 18 countries. Nurdles were found in all but 1 country where nurdle hunts took place, showing the global impact of nurdle pollution.

#### Thank you to everyone who took part!

This year 58 amazing organisations took part in the hunt. We want to thank everyone who organised a nurdle hunt and the 849 volunteers who took part around the world, your efforts equated to over 32 continuous days of nurdle hunting!



HUDEFO reported the first nurdle results from Tanzania Photo credit: HUDEFO, Tanzania

CASE STUDY: PLASTIC PUNCH, GHANA



Top: A Greener Future have organised nurdle hunts along the shores of Lake Ontario, Canada Photo credit: A Greener Future

Above: Nurdles hunts were o Abu Dhabi Photo credit:

Left: Plastic Punch organised nurdle hunts in Ghana Photo credit: Richmond Quarcoo, Plastic Punch

We felt concerned and motivated to take action, upon finding nurdles in Ghana and the Gulf of Guinea.

Plastic Punch, a Ghana based NGO promoting circular economy and environmental preservation, took part in their first Great Global Nurdle Hunt this year. 9 volunteers found 101 - 1000 Nurdles in 30 minutes on sandy beaches in Ghana.

Nurdle pollution poses a critical threat to our environment. Immediate action is vital to revert this threat to the marine ecosystem...enacting and enforcing strict global regulations, such as a (Global) Plastic Treaty. Our environment's health depends on your decisive actions.

Richmond Quarcoo, Co-Founder/Executive Director

### **Call for change**

Progress is being made to end nurdle pollution. It is important that we all continue calling for action and to raise awareness of the issue among policy makers, industry and the media, to show that people around the world demand change.

Nurdle hunters are contacting their government representatives to present evidence of nurdle pollution and asking them to address the issue on a national and international level. This is particularly important as national and EU legislation is developed and international negotiations take place which could address nurdle pollution in the coming months. The more voices demanding change the better, and you can join in too!

#### **Support for NGOs**

You can access resources for use in your own work on our NGO information hub including reports and evidence to reference, information on policy and solutions that can address nurdle pollution and education materials.

All nurdle hunt data that has been collected is freely available to NGOs and organisations to use in their own campaigns and research.

#### We are closer than ever to ending nurdle pollution

After 10 years of nurdle hunting we are at a critical time for ending nurdle pollution. Communities and wildlife can't cope with more plastic pollution and decisions are being made right now that could bring nurdle pollution to an end. Together we can:

- Use nurdle hunt events, our global data set and resources to engage decision makers and evidence the nurdle problem
- Call on governments for legislation to eliminate nurdle pollution and ask them to support action on nurdles at the International **Marine Organisation**
- Support developing a robust UN Global Plastics Treaty by highlighting the nurdle problem to government representatives and the media.

An end to nurdle pollution is brought closer with each nurdle hunt and every nurdle hunter adds their voice to the call for change. We can all take part and do our bit no matter how small.













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