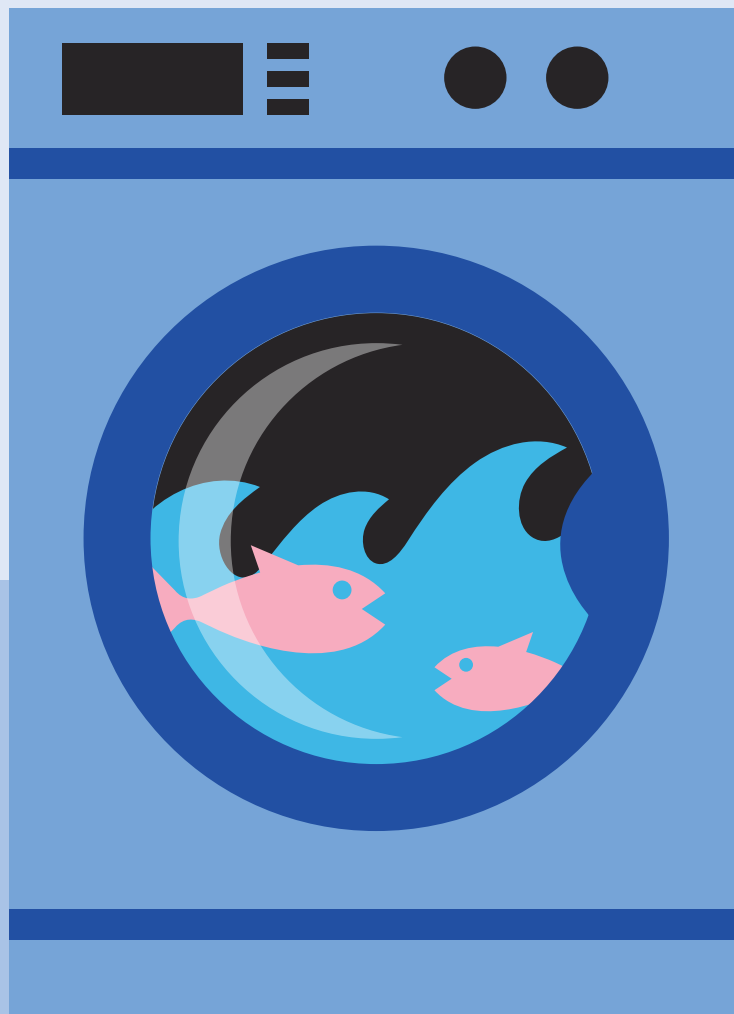


IN A SPIN:

HOW OUR LAUNDRY IS CONTRIBUTING TO PLASTIC POLLUTION

2018



About the NFWI

The National Federation of Women's Institutes (NFWI) is an educational, social, non-party political and non-sectarian organisation.

Founded in 1915, the NFWI is the largest voluntary women's membership organisation in the UK with some 220,000 members in over 6,300 Institutes across England, Wales, and the Islands. The NFWI has a long history of undertaking educational work and campaigning on a diverse range of issues. The NFWI celebrated 100 years of member-led campaigns in October 2018. The organisation has accumulated a wide-ranging portfolio of policy concerns on a local, national, and international level. The NFWI resolution process means that members play a central role in defining policy and bringing issues onto the organisation's national agenda.

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Foreword



At the 2017 Annual Meeting, WI members passed a resolution with a 98.9% majority calling on Government and industry to research and develop solutions to limit the release of microplastic fibres, which are shed from synthetic clothing when laundered.

As with all WI resolutions, this resolution stemmed directly from the concerns put forward by a WI member, who felt passionately about this issue and the threat microplastic fibres pose to marine life and the wider environment.

The End Plastic Soup campaign was launched following the Annual Meeting and follows a long history of WI action to protect our oceans and tackle waste. The first WI resolution on ocean pollution was passed in 1927 and called for international action to help protect marine life from oil pollution from ships.

Other relevant WI resolutions include a 1954 mandate to start a national anti-litter campaign which led to the formation of the organisation Keep Britain

Tidy; and a 2005 resolution on reducing the amount of plastic packaging of consumer goods, which led to WI members returning excess plastic packaging to supermarkets in protest.

During its 103 years, the WI has not shied away from tackling tricky issues, and this campaign is no exception as the issue involves a range of different stakeholders and offers no easy solution. The *In a Spin* report aims to help build understanding about the amount of synthetic clothing that is regularly washed, people's washing habits and sets out recommendations for future action.

This campaign is not only important in terms of reducing microplastic fibre release, but also in reducing people's individual carbon and water footprint as the NFWI has been encouraging people to wash at a lower temperature and wash their clothing less.¹ However, our report highlights that the issue of microplastic fibre pollution cannot be tackled by consumers alone; collaboration, particularly from retailers, is needed to find solutions and ensure positive change.

A handwritten signature in black ink that reads "Lynne Stubbings". The signature is written in a cursive, flowing style.

Lynne Stubbings, NFWI Chair

“Without water the planet would die. If the ocean is contaminated, that trickles through to all walks of life, be that flora and fauna or human beings.”

NFWI survey respondent

Why is the campaign important?

A major source of microplastic pollution is from microplastic fibres, particles smaller than 5mm that are shed from synthetic clothing when laundered. They are classed as the third largest primary source of microplastic pollution,² after vehicle tyre dust and plastic pellet spills.

Due to their size, they are too small to be caught by washing machine filters and end up in the sewage system where they are either caught and remain in sewage sludge or are released into the marine environment. One study estimated that over 90% of microplastics are retained in sewage sludge which is then applied to farmland as fertilizer.³

Microplastics cause particular concern because smaller pieces of plastic are more likely to be eaten by wildlife and have a greater surface area which can transfer chemicals to and from the marine environment. Over 280 marine species have been found to eat or inhale them, including many with important roles in food chains.⁴

Other studies have found microplastics present in seafood sold for human consumption,⁵ meaning these fibres may also be entering the human food chain, the long-term effects of which are unknown.

We know that protecting the ocean is something that WI members feel passionately about and sustainability remains central to the NFWI's work. WI members are dedicated to limiting their own environmental footprints, and taking action to protect the planet. Acting as agents of change, WI members have highlighted microplastic fibres as a key concern within their communities.

What is the End Plastic Soup campaign calling for?

The intention of the campaign is to better understand the scale of the problem and to push for the development of solutions. It is concerned with the impact microplastic fibres have on marine life as well as the potential effects of the fibres entering the food chain.

Microplastic fibres are hard to mitigate for, as wearing and washing clothing is integral to our day-to-day lives and there is no one simple solution. The NFWI is not calling for a ban on synthetic clothing, nor a complete switch to natural fibres, as these carry their own environmental impacts. Instead we are calling for more research to understand the long-term impact microplastic fibres have on the environment and to quantify the issue through measurement and to better understand shedding rates from different fibres. In the long-term, we would like to see industry developing innovations in design and technology to minimise the amount of microplastic fibres entering the environment.

The End Plastic Soup campaign builds on the NFWI's Fast Fashion and Climate Change campaigns. The NFWI is also concerned with the fashion industry's linear model, one where clothing is made, used and then disposed of. The Ellen MacArthur Foundation estimates that every second, the equivalent of one rubbish truck of textiles is landfilled or burned, and the demand for clothing has shown no sign of slowing down, with clothing production roughly doubling in the last 15 years.⁶ The sheer volume of clothing that is produced and purchased and barely worn or recycled illustrates how clothing is underutilised and undervalued, resulting in a huge amount of waste.

The End Plastic Soup campaign so far

Raising awareness of microplastic fibres in local communities

The NFWI produced a 'Wash and Wear Well' checklist which outlines small ways members can make a difference in their own homes, for example by washing at 30 degrees and re-using and upcycling clothing. Members have used this checklist as part of their awareness events and meetings.

Selby Swans WI, North Yorkshire East Federation, has a team of members spearheading the End Plastic Soup campaign in their area. The campaign got off to a great start with a launch article in their local newspaper, which will feature their campaign actions every month. They recently crafted a dress out of plastic bread bags and tablet packs which they are using to raise awareness of the issue.



Members of Lymington WI, Hampshire Federation, took over the foyer of their local supermarket where they handed out the WI's checklist to passers-by. Their MP, Sir Desmond Swayne, came along to lend his support, which was reported in the local newspaper.

Members of Oxfordshire Federation visited their local sewage treatment plant to learn more about how they operate and what small changes they could make in their own lives. One key message they took away from the visit was the importance of not flushing baby and wet wipes down the toilet, as they cause blockages and also contain synthetic fibres.

Raising awareness of the issue in Parliament

WI members wrote to their MPs, requesting in-depth research into the issue, particularly focused on the long-term impact of microplastic fibres on the marine environment and the importance of identifying ways to prevent the fibres being released into water supplies.

30 MPs attended the WI's End Plastic Soup drop-in session held by the NFWI at Parliament in July 2018. The aim of the event was to raise awareness of the issue and urge MPs to push for the development of solutions. Members Ruth Turner and Sophie Collins of Cambridge Ladybirds WI also met with MPs and shared their 'plastic reef' display made from plastic rubbish found on the beach.



Encouraging collaborative work

Collaborative work and joined up thinking is key to facilitating discussion and ensuring outputs are consistent, particularly as a wide range of stakeholders are involved in the issue. The WI is supporting this approach by holding a stakeholder roundtable in Parliament at the end of October 2018.

In a Spin: How our laundry is contributing to plastic pollution

Executive summary:

This report presents the findings of the NFWI's research which was carried out as part of the End Plastic Soup campaign. Nearly 1,500 members and non-members completed an online survey about their washing habits and how they purchase and dispose of clothing. Respondents were spread across England and Wales (plus the Channel Islands and the Isle of Man), with the majority coming from the South East of England.

88% of respondents were WI members and the majority (81%) were aged between 45-74 years old. The average household contained two adults (67%). The survey asked whether respondents had children aged 12 years and under living in their household (this age was chosen as a cut-off point to gather information about the size of the garment and look at how washing and buying patterns changed); 6% of respondents did.

While previous consumer research has focused on disposal routes for clothes and the amount of clothing that is wasted, there is little data on day-to-day washing habits and the types of fibres people are washing on a regular basis. The *In a Spin* report aims to build a clearer understanding about the amount of synthetic clothing that is regularly washed and the potential scale of microplastic fibre release.

The report shows signs of positive consumer action taking place. For example, 90% of disposed clothing was 'mostly' donated to charity shops, and 62% of respondents reported making lifestyle changes, such as washing at a lower temperature, as a result of the NFWI's campaign. This is encouraging and has a positive impact, not only in the reduction of fibre release, but also in reducing individual carbon and water footprint. We hope to see consumers continuing to make small lifestyle changes to ensure they reduce their environmental impact.

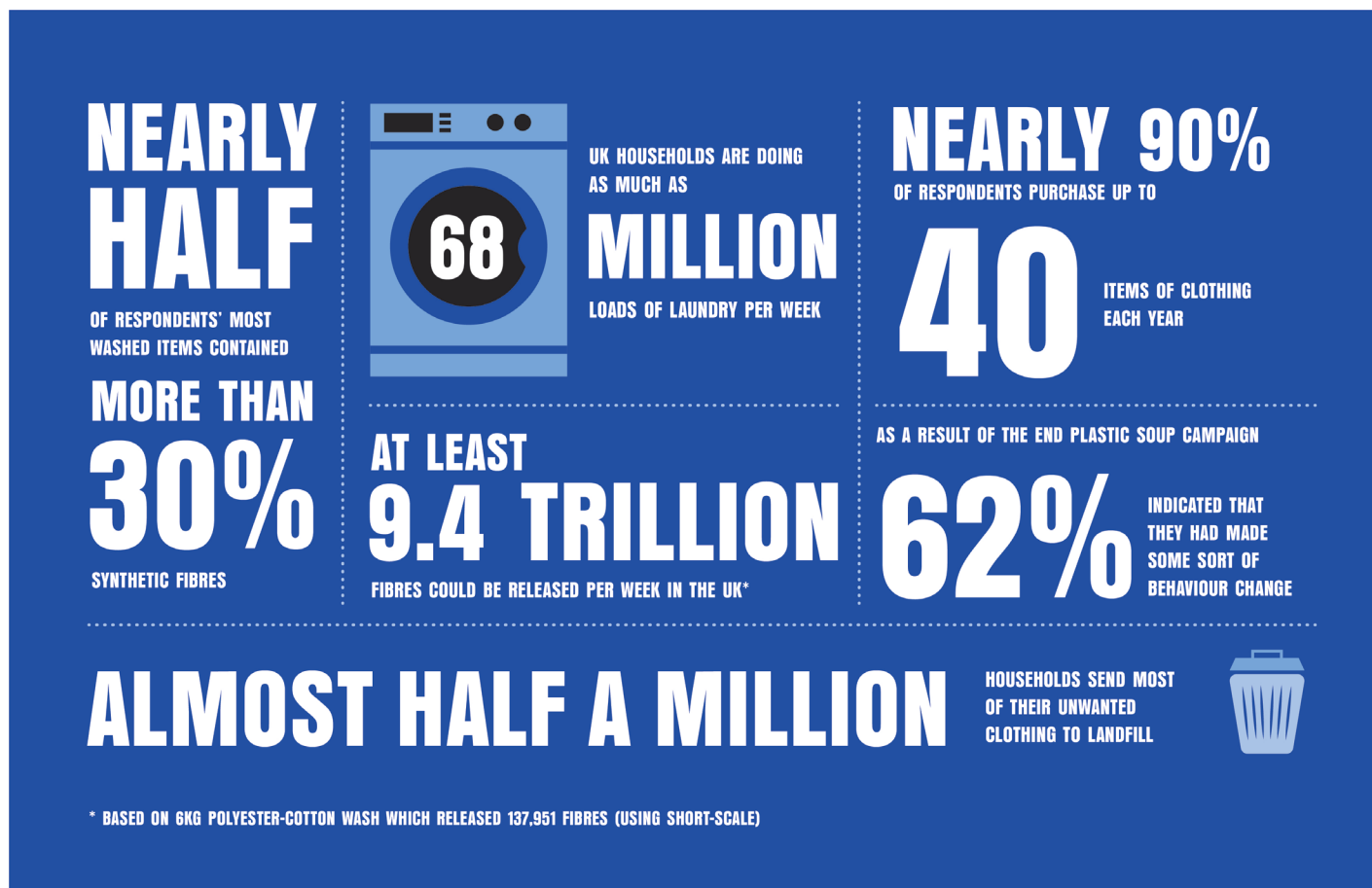
However, the report also highlights that nearly half of respondents' most washed items contained more than 30% synthetic fibres and households are doing 2.5 loads of washing per week - the equivalent to 68 million loads of washing nationally. This indicates that at least 9.4 trillion microplastic fibres could be released per week in the UK.*

The report also looks at consumer purchasing and disposing behaviour, and shows that nearly 90% of respondents purchase up to 40 items of new clothing each year. In addition, almost half a million households send most of the unwanted clothing to landfill.

With regards to future action for mitigating microplastic fibre release, the NFWI believes there is an urgent need to address the knowledge gaps in academic research. In addition, action from all stakeholders is important to develop solutions. This is needed particularly from retailers, who must recognise this is a pressing issue as part of their commitment to the Sustainable Development Goals.

* Based on 6kg polyester-cotton wash which released 137,951 fibres (using short-scale)

Key findings:



Recommendations:

- 1.** Academic research to address knowledge gaps
- 2.** Government action on the issue of microplastic fibres
- 3.** Engagement from retailers
- 4.** Collaboration across sectors
- 5.** Development of washing machine filters
- 6.** Consumer behaviour change

A more detailed list of the NFWI's recommendations can be found on pages 15 and 16.

“The oceans of the world are like the life blood of the earth, if our oceans die, so do we. All life, whether land creatures or marine life are interdependent. It is our duty to ensure the safety of all beings on this planet.”

NFWI survey respondent

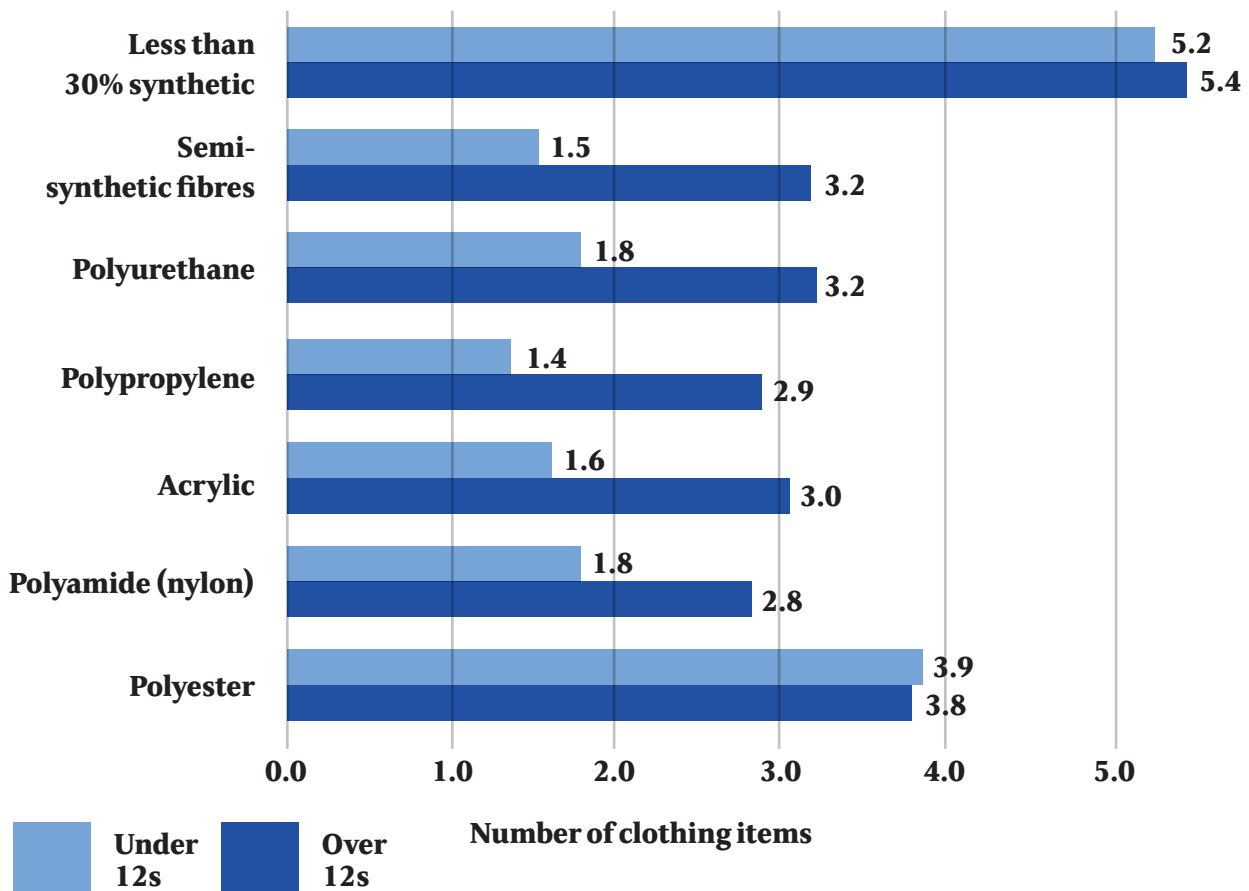
Regularly washed items

Many of our clothes have at least a small proportion of plastic fibres which give them stretch, durability and other useful properties. The huge growth in demand for affordable clothing, combined with advancements in technical sports and outdoor-wear, has resulted in an increase in the number of clothes in our wardrobes which have high proportions of synthetic fibres.

Regular washing of clothing with a high proportion of synthetic fibres will result in the release of microplastic fibres. To understand the scale of this problem, respondents were asked to look at the care labels of their ten most regularly washed items and determine how many of these contained high proportions (more than 30%) of plastic fibres.

Figure 1 shows that nearly half of their most washed items contained more than 30% synthetic fibres. When compared with adult’s clothing, children’s clothing had a lower amount of synthetic fibres, except in the case of polyester.

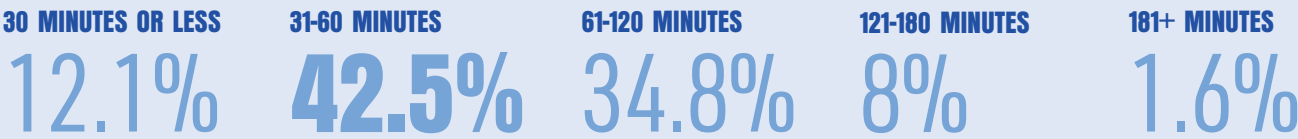
Figure 1: What’s in your ten most washed items?



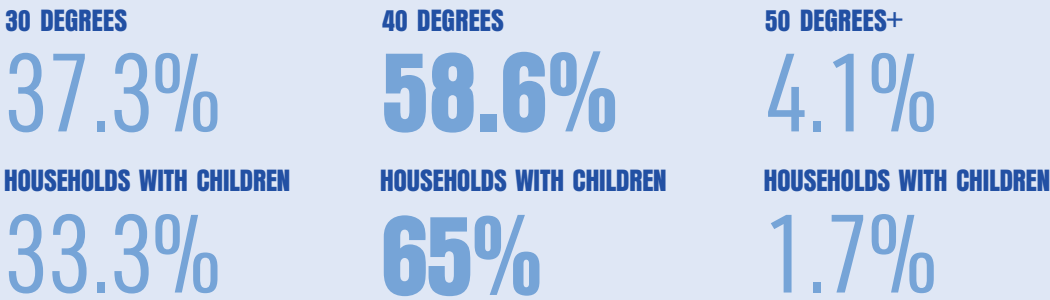
Washing habits

The NFWI asked questions about respondents' household washing habits.

WASH CYCLE



TEMPERATURE



REGULARITY



DETERGENTS



“We are on this word for only a short period of time - it is not ours. It is not for us to destroy.”

NFWI survey respondent

On average respondents are doing 2.5 loads of washing per week per household (or 130 washes per year). If this is scaled by the number of UK households reported by the Office for National Statistics⁷ that would equate to 68 million loads of washing per week.

People living alone reported a lower numbers of washes (1.8 loads of washing per week), but 21.5% were still doing three or more loads per week.

There is currently limited and varied information on the number of fibres released by different fabrics. However, based on Napper and Thompson's 2016 study,⁸ at least 9.4 trillion fibres **could be released per week in the UK.*** While this is a worst-case scenario, it highlights that the potential number of fibres being released is significant.

The figure is alarming, and highlights that retailers need to recognise this as an urgent issue and ensure that microplastic fibres are part of their sustainability agendas. While all stakeholders have a role to play, ultimately, the NFWI believes that the responsibility lies at source.

Research from the Sustainable Consumption Institute found that UK households were washing their clothes after one or two wears as they considered this to be the norm, rather than washing items when they were 'dirty'.⁹ The NFWI's Wash and Wear Well checklist highlights the importance of washing less and asks people to only wash their clothes when they really need to, on a lower temperature and shorter wash cycle.

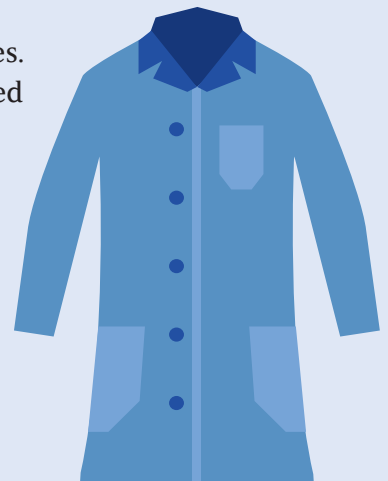
Outerwear

Outerwear (coats, jackets) can contain a higher proportion of synthetic fibres. The survey asked how often people wash their synthetic outerwear compared to their other washed items.

On average, respondents' outerwear is washed **1.3 times per year (or once every 277 days)**.

The results show that these outer items are washed much less regularly than other clothes. This highlights that **the average respondents' household washes its other clothes 100 times more than its outerwear.**

Obviously this will vary between individuals, as people who work outside or regularly take part in outdoor activities and exercise will tend to wash their outerwear more frequently.



* Based on 6kg polyester-cotton wash which released 137,951 fibres (using short-scale)

"The ocean is an important part of our world's ecosystem and cannot go on being treated as a dustbin. I don't want this to be my legacy to the future."

NFWI survey respondent

Clothing purchasing and disposing habits

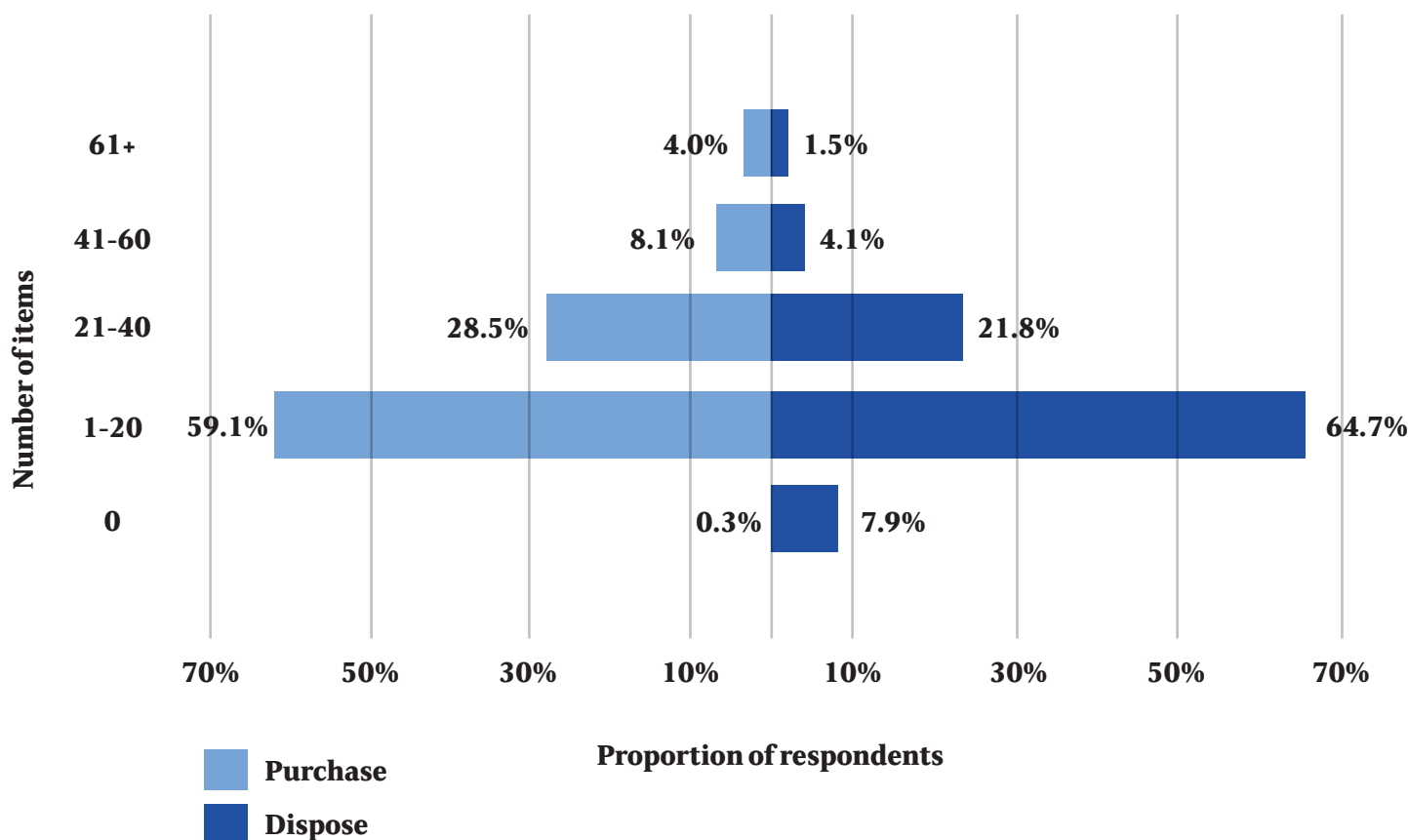
The survey asked respondents on average how many items of clothing their household purchases and disposes* of per year.

Figure 2 shows that two-thirds of respondents said their households purchased and disposed of between 1-20 items a year, which could mean as many as 17,680 new garments bought and 19,340 items disposed of per year.

Nearly 90% of respondents purchase up to 40 items of clothing each year. Changing purchasing habits can be hard as consumers get a short-term buzz from buying a new item of clothing. The NFWI would like to see consumers buying less new clothing in the first place and ensure the item is long lasting. In addition, repair any breaks and tears, to extend the life of garments and reduce the environmental costs that come with buying a new garment.

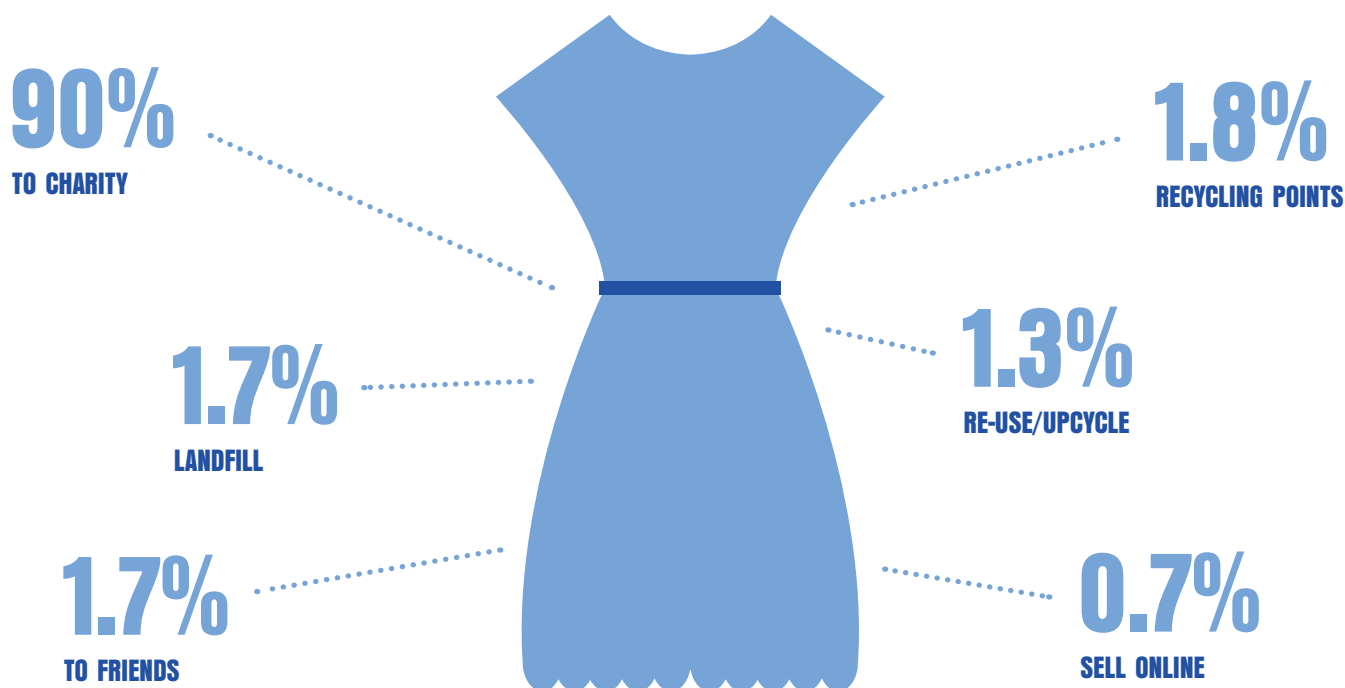
Inevitably some clothing will need to be disposed of at some point, for example if clothes no longer fit, however the volume of disposed clothing could be reduced if more people adopt the Make Do and Mend approach and ensure that clothing is seen as something of value.

Figure 2: Number of clothes purchased and disposed of per year



*The term 'disposing' encompasses sending clothes to landfill as well as re-using and giving them away to friends/charity/online

Unwanted items of clothing – where do they end up?



While the majority of respondents who dispose of clothes each year are passing their unwanted clothes to charity shops, 35.6% indicated that none of their wardrobe comes from second-hand sources, which again draws similarities to WRAP's data that found 38% never buy clothes from charity or vintage shops.

1.74% of respondents reported that their household's unwanted clothes mostly go to landfill, which appears low in comparison to 90% giving to charity shops, but scaling 1.74% to the number of households in the UK equates to 473,000 households sending most of their clothes to landfill.

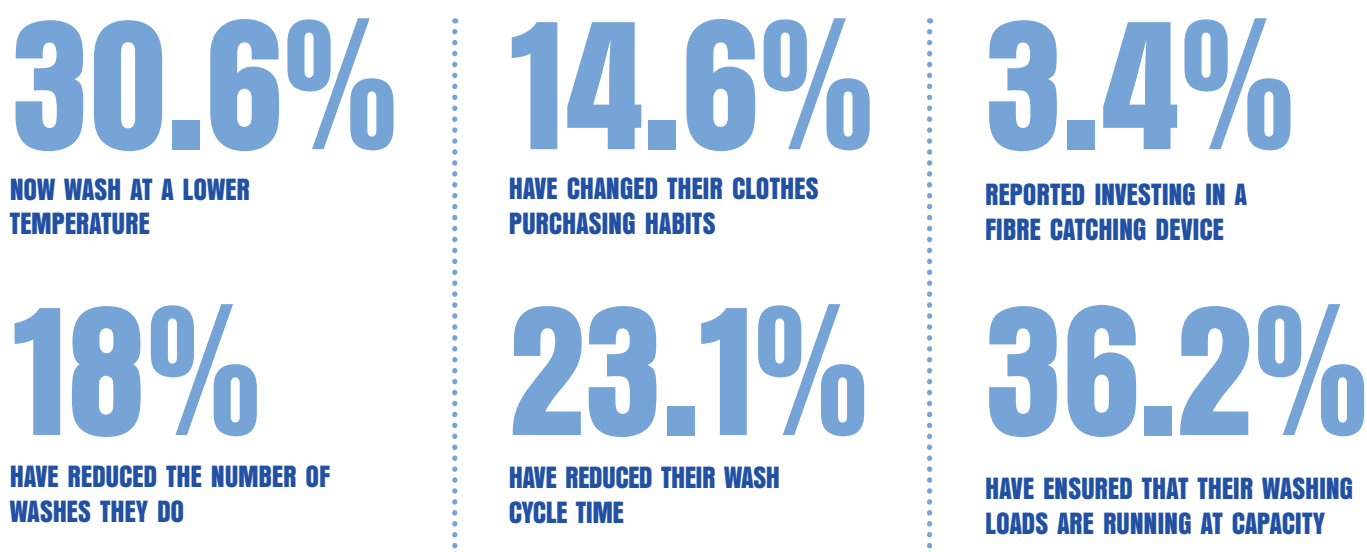
This will be an underestimate, as the households that don't send "most" of their clothes will almost certainly be sending some. Not only that, but a 2017 Sainsbury's study found there is a gender bias in the number of clothes sent to landfill,¹⁰ with results indicating that men are more likely to bin their clothes and most respondents to this survey were women (88.4% were WI members). The same Sainsbury's research predicted a much higher figure of 235 million items heading to landfill, with WRAP's research predicting 300,000 tonnes of clothing ending up in landfill in 2016.¹¹

The NFWI would like to see consumers buying more from second-hand sources rather than buying brand new items and thinking of creative ways to re-invent and/or re-distribute clothing to ensure they are kept in circulation rather than sent to landfill.

Actions to reduce microplastic fibre pollution

At a household level

The survey asked respondents what changes they have made in their daily lives as a result of the NFWI's campaign. These actions not only help to release less fibres, but also help to reduce energy bills, prolong the life of clothes and reduce CO2 emissions.



At a national level

The survey also asked respondents what actions should be taken to reduce microplastic fibre pollution at a national level.

Respondents were on the whole very positive about all the suggestions. The most popular options for reducing microplastic fibre release were: requiring clothing manufacturers to redesign textiles to make them less polluting; increased monitoring of microfibres during water treatment; the development of washing machine filters by manufacturers; and further research into the impact of different fabrics on the environment (97% either agreed or strongly agreed). The least popular options were legislative action from the government and consumers taking responsibility through changing their behaviour (93% either agreed or strongly agreed).

These results reflect the NFWI's view that while consumers can take small steps to help mitigate the release of fibres, concrete action needs to take place further up the chain to achieve real change. We also agree that, at this stage, legislation is not the answer; more research is needed on the long-term impacts and quantification of the issue. The fact that respondents were broadly in agreement with the other measures highlights that this is a multi-sector issue and one that requires collaboration.

“The sea is an integral component of this planet, and instead of celebrating its diverse & unique contribution to maintaining the status quo, we are poisoning and destroying.”

NFWI survey respondent

What the NFWI would like to see next

From industry

The issue of microplastic fibres involves a wide range of stakeholders, from the water companies to fashion brands and washing machine manufacturers. The NFWI believes that all stakeholders must work together and recognise that each has a role to play. However, ultimately, the NFWI believes that the responsibility lies at source, meaning that clothing producers and retailers need to acknowledge the role they are playing in polluting the environment and work towards reducing the amount of fibres emitted.

The NFWI is pleased to see industry efforts to research and gain a better understanding of the complex issue of microplastic fibre release. For example, the Microfibre Consortium, was set up by the European Outdoor Group and includes brands such as M & S and ASOS, in response to a growing need for industry action to develop solutions.¹²

In addition, a Cross Industry Agreement, endorsed by the European Commission, was created in January 2018 and includes the European Textile and Apparel Confederation (EURATEX), the International Association for Soaps, Detergents and Maintenance Products (A.I.S.E.), the European Outdoor Group (EOG), the European Man-Made Fibres Association (CIRFS) and the Federation of European Sporting Goods Industry (FESI). All of these industry stakeholders have agreed to work together to combat the release of microplastic fibres in the marine environment.¹³

The NFWI realises that the issue is multi-faceted. Washing machines carry the fibres into waste water treatment centres where they are released into the environment. Therefore, the NFWI is particularly interested in the development of washing machine filters and whether they can be part of the solution.

While there are concerns about the practical difficulties and financial costs in introducing a type of filtration at waste water treatment level, the NFWI believes it would be helpful to understand the scale of fibre release through monitoring at waste water treatment centres and the impact of these fibres being retained in sewage sludge for agriculture.

To achieve change, we must take the debate through the entire journey, from the production of clothing all the way through to the release of the fibres at waste water treatment centres, with all concerned parties working together.

From Government and academia

The NFWI welcomes the Government's recent pledge of £200,000 to Plymouth University to explore how plastic particles from tyres, synthetic clothing and fishing gear enter our waterways.¹⁴ However there are significant knowledge gaps in relation to microplastic fibres that need addressing.

There needs to be a clearer understanding of what factors affect the rate of shedding for different fibres and studies that reflect a realistic wash load of a mix of fibres. Research should focus on:

- The impact of detergents and softener
- How the temperature of the wash affects shedding
- What type of washing machine people own (front-load or top-load, research suggests top load releases more fibres)
- Whether the age of the garment impacts fibre release

Clearer reporting of fibre release through developing an industry test method will encourage brands to report fibre release consistently and recognise which fibres are the most polluting.

The NFWI is also concerned about the long-term impact the fibres have on marine life and the impact of fibres being retained in sewage sludge (bio-solids) which is then used for agriculture. Addressing these knowledge gaps will help to inform long-term solutions.

The microbead legislation was a welcome and successful example of Government leadership in this area. However, before legislation is implemented there is a need to understand the full impact of microplastic fibres on marine and human health as well as address the knowledge gaps as outlined above.

To ensure that the wider issue of microplastic pollution is not set aside, the NFWI is calling for the Government to follow the Environmental Audit Committee's recommendation of publishing a comprehensive strategy for researching and mitigating sources of microplastic pollution, particularly in relation to synthetic fibres. The UK is at the forefront of scientific advances, and as an Island nation we have a responsibility to protect our seas. The NFWI would like to see Government leadership on this issue.

From consumers

Raising awareness amongst consumers is an important step to ensure that they understand the potential impact their purchasing choices and behaviour have on the environment. The NFWI's End Plastic Soup campaign is educating WI members and the wider public about the issue of microplastic fibres and suggesting individual actions that can help to reduce the amount of microplastic fibres entering the ocean.

Using the NFWI's Wash and Wear Well checklist, individuals have been making small changes to their washing habits which can also have a big impact in terms of saving on water and energy use. The NFWI also believes it is important for people to buy fewer clothes in the first place, and buy second-hand as much as possible. Research by the charity TRAIID found that 23% of Londoner's clothes are unworn, the equivalent of 123 million items.¹⁵ The NFWI is encouraging people to upcycle, re-use and recycle their un-used clothes to extract the maximum value and asking WI members to use their crafting skills to hold awareness events and teach their communities about what to do with damaged or unwanted clothing, reviving the 'Make Do and Mend' approach.

With regards to microplastic fibres, the development of capture products such as the Guppy Friend and the Cora Ball has played a positive role in allowing concerned consumers to make changes in their own lives, and to raise awareness of the problem. However, we believe more research is needed to fully understand their success rate and practicality. In addition, it is important to ensure correct disposal of the fibres.

As emphasised in our survey results, the onus cannot solely be on consumers taking responsibility through behaviour change. The majority of consumers are unaware of what microplastic fibres are and there is a lack of consumer choice when it comes to purchasing less polluting clothing. While consumers play an important role through raising awareness of the issue, making lifestyle changes and putting pressure on industry, for substantial change to occur it is necessary for industry, NGOs, academia and government to come together to seek solutions.

"I have a daughter. She inherits the planet that I leave behind, and I have a responsibility to ensure it's one that still works."

NFWI survey respondent

Recommendations:

Academic research to address knowledge gaps:

- Academic research should focus on the impact microplastic fibre pollution has on marine life and the impact of fibres being retained in sewage sludge used for agriculture.
- There needs to be a clearer understanding of what factors affect the rate of shedding for different fibres and clearer reporting of fibre release, to ensure consistency. It is hoped that the Microfibre Consortium's work with the University of Leeds to develop an industry test method to understand the weight of material release will encourage brands to report fibre release and recognise which fibres are the most polluting.

Government action on the issue of microplastic fibres:

- Government should publish a comprehensive strategy on what steps it is taking to research microplastic fibre pollution to help inform solutions to the issue. The Government needs to recognise that this as an urgent, emerging issue that needs direction.
- The NFWI welcomed the research funding grant of £200,000 to Plymouth University, however this is not sufficient to address the issue. More funding is needed to support academic research into the area.

Engagement from retailers:

- Retailers need to recognise the role their businesses play in polluting the environment and take action as part of their commitment to the Sustainable Development Goals. They need to educate their suppliers, manufacturers and colleagues on the issue of microplastic fibres, as well as join current industry efforts to ensure that tackling the problem is part of their sustainability agendas.
- Retailers should improve messaging to consumers about the importance of repairing, re-using and upcycling garments, as well as offering repair and recycling services to consumers, for example by rewarding customers who return unwanted items in store.

Collaboration across sectors:

- Industry collaboration will be vital to achieve change, with all concerned parties working together to recognise their role in developing solutions. The Sustainable Clothing Action Plan (SCAP) 2020 commitment coordinated by WRAP brings together 85 clothing retailers in a collaborative effort to reduce their environmental footprints of the clothing industry. However, there is currently no action point for mitigating and researching microplastic fibre release. Post 2020 we would like to see SCAP or an equivalent to be continued and to encompass microplastic fibres. As part of this, a collaborative cross-sector group made up of retailers, washing machine manufacturers, water industry, DEFRA and researchers would be welcome.

Development of washing machine filters:

- Ideally solutions need to come from the source of the pollution and the NFWI hopes that further research, as outlined above, would inform textile and clothing manufacturers about changes that can be made to reduce fibre release.

The NFWI would like to see more research into the development of washing machine filters, as filtration at household level could make a positive contribution to the reduction in fibre release, however the method of disposal of these fibres should be carefully considered.

Consumer behaviour change:

- Individuals can reduce their microplastic fibre emissions through making small changes in the way that they wash, buy and dispose of clothes. We know there is still room for improvement as the report findings show nearly 60% of respondents wash their clothes at 40 degrees. The NFWI's Wash and Wear Well guide lists a range of actions that individuals can take to help them do this. The NFWI and WI members will continue to promote this guide to generate consumer change.

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Incorporated in England & Wales as a company
Limited by Guarantee – No. 251 7690
Charity Registration No. 803793

October 2018