



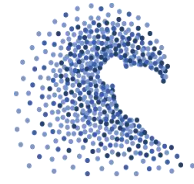
Marine Litter in Wales Research Summary 2019

EMFF MARINE LITTER RESEARCH PROJECT





Llywodraeth Cymru
Welsh Government



moroedd glân
troi'r llanw ar blastig
clean seas
turn the tide on plastic

[Keep Wales Tidy](#), [Marine Conservation Society](#) and [Eunomia Consulting](#) have been successful in a partnership bid to Welsh Government to undertake research into Marine Litter in Wales. Thanks to funding through the European Maritime and Fisheries Fund, this research will provide critical knowledge to support the delivery of the Marine Litter Action Plan for Wales and the Marine Strategic Framework Directive.

The [Clean Seas Wales Partnership](#) is the multi-stakeholder group which represents Welsh Government and Local Authorities, port and harbour authorities, the fishing industry and private and third sector partners who have come together to take forward the Marine Litter Action Plan (MLAP) for Wales.



cadwch keep
gymru'n wales
daclus tidy

eunomia



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Front page image: Full Page Image of Kingfisher with plastic. Photo by Andy Morffew

Top of page: Left: EU Investment logo Top Right: Welsh Government Logo Bottom Right: Clean Seas Wales Logo

Bottom of page: Right to left: Keep Wales Tidy Logo, Eunomia logo, Marine Conservation Society logo

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Glossary

COPLAR: Code of Practice for Litter and Refuse

A practical guide to the duties to keep land clear of litter under the Environmental Protection Act 1990 England & Wales

EMFF: European Maritime and Fisheries Fund

The fund for the European Union's maritime and fisheries policies for 2014-2020

EPR: Extended Producer Responsibility

An environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle

GIS: Geographic Information Systems

GIS is a mapping technology that allows the user to create and interact with a variety of maps and data sources

HEI: Higher Education Institution

Universities, colleges, and further education institutions offering and delivering higher education

KS2 and KS3: Key Stage 2 and Key Stage 3

Key Stage 2 refers to 4 years of schooling (years 3-6), while Key Stage 3 refers to the 3 years of schooling (years 7-9)

KWT: Keep Wales Tidy

The charity working across Wales to protect our environment for now and for the future

MCS: Marine Conservation Society

The UK charity working to ensure our seas are healthy, pollution free and protected

MLAP: Marine Litter Action Plan (for Wales)

An action plan which is designed to help tackle marine litter and maintain or achieve Good Environmental Status in our sea waters by 2020 under the EU Marine Strategy Framework Directive

MSFD: Marine Strategy Framework Directive

Legislation aiming to protect more effectively the marine environment across Europe

NGO: Non-Governmental Organisation

A non-profit organisation that works independently of any government

R&D: Research and Development

Activity aimed at discovering solutions to problems or creating new knowledge

UK: United Kingdom

Country consisting of Great Britain (England, Scotland and Wales) and Northern Ireland

UN: United Nations

An international organisation which aims to solve world problems in a peaceful way

UNEP: United Nations Environment Programme

The voice for the environment within the United Nations

WLGA: Welsh Local Government Association

The organisation which represents the interests of Local Government and promotes local democracy in Wales

Key Messages

This report provides an overview of the findings of the Marine Litter Research Project which took place between September 2018 and June 2019. This research has been compiled into three reports, each relating to aspects of the Marine Litter Action Plan for Wales – *‘Building a strong evidence base to inform action’*. The considerations and findings within these reports have been derived from interviews, focus groups and a series of regional workshops. This evidence can now inform the future direction of the Marine Litter Action Plan for Wales.

Research

- Although we still have a lot to learn about the impacts of litter on the marine environment, we know enough to know that urgent action is needed.
- Further research is required, particularly on behaviour change for waste behaviours and the scale and impact of microplastics.
- Research in the near future will likely highlight the extent of microplastics in the terrestrial environment and impacts on human health.
- Despite recent innovations and increased R&D funding, scalable alternatives appear unlikely, at least in the short – medium term. Thus, prevention- through reduction and engagement - must be at the heart of our efforts.

Communication

- The scale and pace of the momentum has created a demand for advice and information on plastic alternatives which has yet to be articulated outside of broad campaigns, leading to mixed messages and confusion.
- There is an opportunity to maximise the effectiveness of communication efforts through a more joined up approach. (For example; Local Authority education officers are almost entirely devoted to household recycling participation, integration of litter impacts, waste reduction and related issues would support a more cohesive message).

Collaboration

- Future activities could be supported along ‘spatial pathways’. Major tributaries and transit routes provide an ideal focus for collaboration but can also offer multiple opportunities for education about how litter travels to the ocean.
- The primary hindrance to collaboration on litter issues is the disparity of approaches – from recycling, to enforcement, to cleansing and infrastructure.

Tourism

- The tourism sector, officers in Local Authorities, National Park Authorities and associated businesses have a key role to play in regard to communication and represent a currently under-utilised resource for communication and engagement.
- Further research is required on behaviour change across contexts and the extent of ‘holiday psychology’.
- The sector (public and private) should be supported to develop messages around ‘A Wales of Clean Seas’ which increases the sustainable destination offer whilst also communicating expectations of responsibility of visitors. (For example; the Countryside Code’s strapline of: *‘Take nothing but photographs, leave nothing but footprints’*).

Welsh Government Legislation

- Adoption of the Single-use Plastics Directive and future UK EPR regulation will be key to tackling persistent and problematic items at source.
- There is also a key role for Welsh Government in creating national regulations and guidelines to address the disparity of approaches at a Local Authority level which currently hinder collaboration.

- A 'Tourist Tax' was also identified as a mechanism with real potential to support targeted communication, cleansing and engagement which can complement Local Authority and community activity.
- Other economic levers could also be considered with the any revenue directed toward refocusing on prevention and reduction measures.

Data

- Beachwatch (MCS) and LEAMS (KWT) Surveys provide consistent and long-term datasets which provide a wealth of information, particularly over time.
- Other data collection methods need to be explored and uniformity of collection systems would significantly enhance collaboration.
- The primary challenge is not of data collection but how this is used to identify and monitor persistent issues.

Supporting volunteers

- Volunteers taking part in litter picks and beach cleans in Wales are remarkably high.
- Volunteers are vital to our efforts to a cleaner, greener Wales and many Local Authorities are heavily reliant, if not dependent, on their activities and support, particularly 'out of season'.
- Increasing volunteer numbers is not without resource implications and a more coordinated approach by Local Authorities and the third sector to formalise support could prove beneficial.

Funding & procurement

- Over half of the Councils in Wales have passed a form of motion on reducing plastics with a number of these actively reviewing procurement across all of their estates. Many other councils have said that this was an aspiration they hope to work on in the near future.
- To support this, any public sector funding or licences (e.g.; events), should also include requirements for responsible waste management and/ reduction plans for single-use items.
- There are currently no Fishing Litter Schemes in Wales although this is an area with the largest scope for innovation and potential revenue.

Background

At the UN Environment Summit in Nairobi in 2017, UN Oceans Chief declared that ‘Marine Litter is a Planetary Crisis’.¹ Estimates from the UNEP have shown as much as 20 million tonnes of plastic end up in the world’s oceans each year.² In just a few short decades, plastics have become the biggest threat to our ocean’s ecosystems and the direct and indirect impacts on wildlife, human health, climate change and indeed the global economy are only just beginning to emerge.

Although studies of marine litter gained academic interest as early as the 1970’s after the discovery of plastic pellets in the North Atlantic³, global action on the issue has only really begun to materialise in earnest in the past decade with the release of the Honolulu Strategy in 2012. More recently, the finale of the BBC series ‘Blue Planet II’ has played a significant role in raising awareness of the scale and impact of marine litter and has served to catalyse action from government, communities and businesses, attracting further attention from UK and international media.

We know that debris/litter and microplastics are ubiquitous in the ocean, occurring on remote shorelines, in coastal waters, the seabed of the deep ocean and floating on the sea surface.⁴ Studies have shown the devastating impact that this has on all levels of the food chain and the scale of ingestion from plankton to whales. Increased research attention in this area is unveiling more discoveries of the scale and impact of plastics in our oceans – from their contribution to climate change, to presence in the salt we eat and the air we breathe, to the proliferation in our rivers and our soils.

World leading studies from Cardiff University’s Water Research Institute has found microplastics present in invertebrates and river birds along the three main rivers in South Wales. This relatively new field of terrestrial and freshwater exploration is likely to uncover the next wave of concerns about plastics in our environment as we begin to comprehend the scale of the issue.

‘Every year, the sum of humanity’s knowledge increases exponentially. And as we learn more, we also learn there is much we still don’t know. Plastic litter in our oceans is one area where we need to learn more, and we need to learn it quickly. [But] the important message is that we already know enough to take action’.⁵

It is recognised that preventing marine litter requires global collaboration as well as unilateral action. The MLAP for Wales is strongly aligned to the principles of the [Well-being of Future Generations \(Wales\) Act](#) and previous activities for ‘Year of the Sea’ have linked to the global [Clean Seas](#) campaign and the related [UN Sustainable Development Goals](#) and 2030 Agenda.

In addition to the MSFD ([Descriptor 10](#) which outlines the requirement for the reduction of harm caused by marine litter), findings from this research contribute significantly to the knowledge base required for taking forward the MLAP for Wales and related policy ambitions such as ‘[Towards Zero Waste Wales](#)’ and related European Directives which form part of the world’s first internationally agreed [Plastics Strategy](#).

More broadly, a more sophisticated and joined up approach to waste and the prevention of materials from entering into the environment will contribute to the development of the [Circular Economy in Wales](#) which has the potential for job creation and presents a new, sustainable way forward for the manufacturing, reprocessing and reuse of waste materials and manufacture.

Similarly, the introduction of robust EPR legislation for packaging which encourages source reduction and the development of closed loop systems based on the ‘polluter pays’ principle is a vital step toward a more sustainable waste future. Not only would this support the demand for much needed secondary markets but the potential revenue generated from such schemes could support consumer

awareness and community initiatives which are a fundamental to creating a cleaner future for our oceans.

As much as 85% of catalogued marine litter is made up of plastic and polystyrene.⁶ Despite the problems associated with its sourcing and manufacture, plastics are versatile, lightweight and cost-effective and have infinite applications. Becoming ‘plastic-free’ is not an achievable ambition in the imminent future as, despite recent innovations and significantly increased R&D funding, scalable alternatives appear unlikely, at least in the short – medium term.

Thus, prevention- through reduction and engagement - must be at the heart of our efforts and future policy.

A holistic and integrated policy approach – both locally and nationally – is not only necessary but economically beneficial. The link with the litter agenda and tourism for example, is far from tenuous. Our coastlines and the communities that live there (over 60% of the Welsh population⁷) are some of the most vulnerable to the impacts of climate change. Limiting the devastating impacts of marine and land pollution will enhance the resilience of our freshwater and marine ecosystems and provide economic benefits by enhancing our destination offer to the world.

‘A central reason why visitors choose to holiday in Wales is the quality and accessibility of the natural environment.’ – [‘Partnership for Growth’](#); The Welsh Government Strategy for Tourism 2013 – 2020

With the genuine commitment to the principles embedded in the Well-being of Future Generations Act; local, regional and national collaboration to prevent marine litter at source is achievable although it cannot be extracted from the wider landscape of consumerism, recycling, local economic development and of course, environmental growth and resilience.

Tackling the issue of marine litter can seem like an insurmountable challenge and it is one which needs to be addressed globally, but just as individual consumer choices can have a big impact, so too can the choices of a small country.

Introduction

[Keep Wales Tidy](#), [Marine Conservation Society](#) and [Eunomia Consulting](#) have been successful in a partnership bid to Welsh Government to undertake research into Marine Litter in Wales. Thanks to funding through the European Maritime and Fisheries Fund, this research provides critical knowledge to support the delivery of the Marine Litter Action Plan for Wales and the Marine Strategic Framework Directive.

This work has been closely aligned and led by conversations with the [Clean Seas Wales Partnership](#) which is the multi-stakeholder group which represents Welsh Government and Local Authorities, port and harbour authorities, the fishing industry and private and third sector partners who have come together to take forward the Marine Litter Action Plan (MLAP) for Wales. (see [Appendix 1](#)).

The elements of the Stage 1 Research project are linked to the first stages of the MLAP, primarily the aim of ‘Building a strong evidence base’, (1A, 1B, 1C, 1D) to gain understanding of what works and capturing the recognition that different types of litter require different solutions.

Preliminary investigations with coastal authorities into their beach cleansing and management strategies in 2017 which has fed into this research showed that significant resources are diverted to managing litter on beaches, particularly during the bathing season. Hence, we have considered activities from the voluntary sector and the public sector across every authority in Wales and have highlighted the importance of less visible pathways to the sea, such as rivers and water ways. As it is

widely estimated that the majority of litter comes from terrestrial sources, our exploration has not been confined to coastal areas.

The research was split into four stages which can be broadly categorised into explorations of the Public, Academic and Community sectors respectively. A final stage has considered the application of the learning to the future of the MLAP and other related strategies and the development of future communication methods for a number of key target audiences which have been identified over the course of this research.

Methodology

1. *Litter management in Wales*

This stage of the research was based on the feedback and discussions with Local Authorities and other CSW Partnership stakeholders at three regional workshops held in November 2018. Semi-structured phone interviews were held with every Local Authority in Wales to identify current practice and management. The feedback from the workshops and interviews was collated into the 'Litter Data and Strategies' report, mirroring the areas identified within the MLAP. Port Authorities play a vital role in responsible marine litter management although it was outside the scope of this study to conduct interviews Port Management.

Three years of LEAMS data was input and analysed alongside MCS Beachwatch data from 2007 to Sept 2018. Both methodologies are relatively robust although volunteer numbers and participation had to be standardised to allow for both datasets to be considered on an annual basis. Beachwatch data had to be standardised across a number of variables, as numerous examples exist where beach survey length, time spent, or volunteer effort varied considerably. Data for all years of MCS Beachwatch data was also subjected to hotspot analysis in GIS and given a Getis-Ord G_i^* statistic, to see whether features with either high or low values of each category clustered spatially in a significant way. In a related fashion, each dataset was given a Local Moran's I^2 statistic of spatial association, to determine if neighbouring survey locations had similarly high or low attributes [enough to be statistically significant]. There are limitations to both methodologies for spatial mapping and citizen science data should be viewed accordingly.

2. *Global Practice Review*

The Practice Review comprised of desktop-based research and data gathering through the extensive community networks available to KWT and MCS respectively. Case Studies in were included on the criteria of; scalability, innovation, sustainability (non-reliance on grant funding), availability of data and longevity (actions undertaken for 3 years or more). European and International practice was identified through previous research by Eunomia and through Keep Wales Tidy's role in the global Foundation for Environmental Education (FEE) Network. This review is extensive but still only provides a snapshot of current activity, although case studies have been included for their potential for replication and sustainability, the reality of funding will almost certainly dictate longevity.

3. *HEI Review*

This element aimed to gauge current research activity and to gauge the future research landscape in the short -medium term through the identification of HEI funding. A tightly defined literature review was undertaken for four discipline areas; Behavioural change for

¹ The Hot Spot Analysis tool calculates the Getis-Ord G_i^* statistic for each feature in a dataset. The resultant Z score tells you where features with either high or low values cluster spatially.

² Moran's I is a correlation coefficient that measures the overall spatial autocorrelation of a data set. That is; it measures how one object is similar to others surrounding it

litter and waste reduction; scale and impact of microplastics, Methodologies for measuring micro and macro plastics and R&D into plastic alternatives. This element only included peer-reviewed papers published in the past three years. However, a call for evidence was put out by Cardiff University to identify current research projects and was considered alongside relevant submissions on the Council Funding Database: <https://gtr.ukri.org/> and UK Data Service; <https://www.ukdataservice.ac.uk/>. A number of interviews were also conducted to establish future directions and the status of current research including Cardiff University's Water Institute, Welsh Water and Plymouth University.

1. Litter management in Wales: An analysis of litter data and strategies

This report is aimed at local authorities, Welsh Government, NGO's, policy makers, town and community councils and interested stakeholders.

The first element of this research was to undertake an all Wales analysis of Local Authority current practice, including communication, collaboration, partnerships, infrastructure and cleansing, and, where applicable, beach and coastal management (mirroring the areas identified within the MLAP). This was done through phone interviews with all 22 Local Authorities and a series of regional workshops which were held in November 2018.

There were a number of challenges and opportunities which came out of this process and the report; '*Litter management in Wales: An analysis of litter data and strategies*' includes a series of future considerations included for Welsh Government and Local Authorities with a particular focus on how greater communication and collaboration can be achieved across Wales, building on the current unprecedented level of volunteer activity and the 'Blue Planet II effect'. The key message from this comprehensive exercise was the significant opportunity for delivering more effective communication messages through more joined-up working, both internally and externally, and the need for a much greater focus on prevention work, rather than reactive cleansing. Although greater direction from Welsh Government will be needed in some areas, a number of 'quick wins' have also been identified through, for example, procurement reviews on public estates and adding waste reduction as a requirement for all public sector funding.

It was encouraging to find that half of all the Local Authorities in Wales had already embarked on a single-use plastic reduction reviews across their own estates with many others citing it as a future ambition.

From recycling (kerbside and street-side) to enforcement, to cleansing and education, the diversity of approaches operating in each area of Wales for all the elements covered in the interviews was identified as the biggest challenge to collaboration. Identifying key spatial pathways of litter into the marine environment (e.g. rivers or roads) could provide the basis and clear rationale for greater regional cooperation and greater engagement.

Unanimously, the role of community groups and individual volunteers in keeping our streets, beaches, parks and rivers clean, was a crucial contribution to Local Authority efforts in a time of reduced resources with many citing that they were 'heavily reliant', if not entirely dependent on their activities.

There is an opportunity to develop a more integrated and holistic approach within departments (e.g. housing and tourism, education and waste) which could serve as a cost-effective way of maximising communication and engagement. Although a couple of Local Authorities have supported local community group campaigns (or those developed by environmental charities), no Local Authorities were investing in any current campaign in this area. The primary focus of all Local Authorities and their education officers is recycling participation in the home to increase recycling participation. As

such, there is no integration with the issue of waste *outside* of the home (whether recycling or litter) which was considered as a clear opportunity.

Also contained within the Litter Management report is a spatial analysis of (MCS) Beachwatch and (KWT) LEAMS data which identified some of the key spatial areas for litter accumulation. The workshops and interviews identified different data sources and explored the ways these could be used to inform communication and strategies. Currently, this is not considered in any depth as all Local Authorities are primarily focused on cleansing, rather than prevention. Only two Local Authorities have litter strategies in place and it is recommended that all Local Authorities consider this combined data when targeting preventative action. Most litter density occurrences correlate with areas of high population although the data showed that this was not always the case and these instances demonstrate the impact of visitors and tourism on certain areas. High amounts of drink related litter for example, are to be found around Snowdon in Gwynedd, which does not correlate with the low density of population and would therefore indicate transient populations as the source. All spatial maps and data used can be found [here](#).

The only Fishing Litter schemes in Wales have been forced to end due to the lack of continuation funding available. Maintaining communications capacity, coordination and infrastructure over the long term is a challenge for both public sector and voluntary sector organisations. A key barrier is the reliance on funding and the inability of many public sector funding streams to support continuation of projects or staff.

A tourist tax was considered as a sustainable way that revenue could be raised to respond specifically to the challenge of the increased pressure on tourism destinations and to maintain interventions that are known to be effective.

2. Global Practice Review – Tackling Marine Litter

This report is aimed at NGO's, policy makers, funders and local authorities who are considering best practice and project development.

Utilising the extensive networks of all of the partner organisations, a review of current projects and practice committed to tackling the marine litter challenge was carried out with a specific focus on activity in Wales. Projects were considered for inclusion for their contribution to key elements of policy, international commitments or exceptional innovation.

Rising to the marine litter challenge, the past two years has seen an unprecedented amount of volunteer activity in the UK and beyond. It is impossible to capture all of this activity although a few community groups have been highlighted for their longevity, innovation and non-reliance on funding. Three groups are highlighted in Wales as examples of the breadth and innovation of community groups, from a handful to hundreds in number, from rivers, roads and the deep sea.

The review covers global initiatives as well as community activity, organisational campaigns and funded projects in Wales, the UK and Europe who are tackling marine litter. This includes, clean up groups, river projects, campaigns and 'circular ocean' activities as well as the contribution of the Water Industry. Fishing Litter schemes are also included and should be considered for replication as engagement with the fishing industry.

With the exception of localised community efforts, many of the organisations, campaigns and projects are heavily reliant on external funding which always presents a risk for future sustainability. The review includes an overview of how environmental NGO's operate in Wales. Like one of the key messages from the Local Authority analysis, environmental NGO's could also benefit from increased collaboration although the main challenge to this is the provision of coordination and the inevitable competition for funding within the sector.

3. HEI Review

This report is aimed at researchers, students, HEI's, funders, businesses, policy makers and other interested stakeholders.

A review of activity across Higher Education institutions was carried out which brought together the most recent findings and understanding of: Behaviour change interventions to reduce litter or plastic consumption, the scale and impact of microplastics, current methodologies to measure micro and macro plastics and R&D into plastic alternatives. This review is the combination of a review of the key literature and discussions with various research institutes and academics.

To ensure that this report remains relevant in a fast-paced research environment, wherever possible, only published research from 2016 onwards has been considered. The report provides a synopsis of current research and knowledge gaps and an overview of current research and funding allocations to attempt to build a picture of the future research landscape over the next 3-5 years. Evidence has been gathered from European projects and international research centres, but the significant contribution of Universities in Wales has also been highlighted.

There are a number of elements of the scale and impact of marine litter which we do not fully understand. The motivations behind (single-use) plastic reduction and the impacts of consumer changes for example, are a current gap in the field of behavioural science and one which may be the most critical for policy makers in the near future. This area however, was also the most lacking in current funding allocation. Although we have some idea of the scale, one of the major gaps in our knowledge is the prevalence of microplastics in the terrestrial and freshwater environments. Cardiff University Water Research Institute is leading research in the area of freshwater analysis and microplastics but the exploration into the presence and impacts on soil, crops and human health are all in the very early stages. Within the next five years, it is expected that findings from these areas may contribute to our next wave of concerns over plastics. Early research findings would suggest that the issue will be at least equal to our current knowledge of the marine environment.

There has been significant funding from the UK government for R&D into plastic alternatives although it should be noted that for every new innovation there are a number of cautionary responses warning against future unintended consequences. Currently, there are no viable solutions which could be adopted at scale and many projects are focused on material innovation without consideration of the current UK infrastructure.

Considering the scale of the 'unknown' in this area, funding opportunities are not as plentiful as one might expect and almost all collaborative, inter-disciplinary projects are funded through European Funding Programmes. At present, UK HEI access to future funding and collaborations post-2021 is unknown due to the uncertainty over the UK's exit from the European Union.

4. Taking forward the Marine Litter Action Plan

The last stage of this research process was to identify how to transfer the learning into the MLAP and communicate our findings to stakeholders and wider audiences. Following the previous reports, a workshop was held to discuss development of the MLAP and key messages regarding the source and spread of marine litter in Wales. Some of the main opportunities for coordinated actions in the context of the MLAP were discussed and form the basis of the Action Plan review.

In recent years, there has been a conscious move away from general anti-litter campaigns as it is recognised that different types of litter require different interventions. Tackling smoking related litter for example, requires a different approach from attempts to tackle littering from vehicles. Early research is also increasing our understanding of different approaches for different audiences, particularly those groups who are transient and would feel no 'ownership' over an area. This is

particularly pertinent to Wales' growing number of visitors. Together with appropriate infrastructure such as the provision of the popular 2-minute beach / street clean boards, revitalising the Countryside Code's adage of 'Take nothing but photos, leave nothing but footprints' could capture both the message and instruction to visitors and aligns to action 3D (MLAP).

The current level of public awareness of plastics also provides a significant opportunity for engagement and education and a coordinated message around 'source to sea' could prove effective. Indeed, one of the key actions for future strategy is to coordinate actions around spatial pathways to highlight this message and to foster regional collaboration. Rivers are the most obvious focal point for many although canals, roads and even the rail network can be used to highlight the transient nature of discarded litter and to promote more responsible behaviour. The unique Wales Coast Path could also be utilised to this end.

It has been recommended that all Local Authorities (and National Park Authorities where applicable) consider current data on litter, transit of people and spatial pathways to develop collaborative action plans and strategies for their areas, particularly in visitor destinations.

Coordinated support for campaigns to prevent inappropriate waste entering sewage and waterways (such as Welsh Water's 'Stop the Block') would benefit from a coordinated approach across Wales, in partnership with Local Authorities, environmental NGO's and schools. This builds on Section 2 of the MLAP although it is recommended specifically that other stakeholders can be targeted through this campaign on specific sources. For example, information on the appropriate disposal of wet wipes can be directed at the care industry and nurseries.

The fishing industry should also be seen as a separate audience for future messaging as evidence shows that peer to peer messaging would be the most effective in this group and should be considered as part of any future 'Fishing for Litter' type schemes. (3E, 3F MLAP).

As part of this research, two Marine Litter Education workshops were held in Spring 2019 through the Eco-Schools Programme. The Eco-Schools programme is both a long-term, environmental programme and an awards process; it is very important that it is viewed as both and not just an award scheme. The school is making a commitment to environmental change, led by the pupils. It is unique in its 'bottom-up' approach to environmental action. Being pupil-led gives them ownership of actions, improvements and responsibility for project development. 'Days of Action' were held with schools currently less engaged or at bronze/silver level in the Eco-Schools programme while the 'Litterless' scheme is currently running with platinum level Eco-schools, that is schools with a current established programme. Through these projects, Keep Wales Tidy engaged pupils on the subject of marine litter and possible messaging. The two projects are detailed in [Appendix 2](#).

"We should design things to help. What about netting drains?" (Y5 pupil)

The policy context at the time of writing is uncertain due to open consultations on EPR legislation. It should be noted that the options adopted for EPR and the potential for a UK-wide Deposit Return Scheme for drinks containers will have a direct impact on some aspects of the MLAP for Wales, with implications for the way that we engage with consumers and industry and the potential for new revenue for community activity. However, these particular changes should not be seen as a panacea and there are a number of policy solutions which could be considered by Welsh Government to catalyse the necessary sea change.

Appendix 1: Marine Litter Action Plan (Summary of Actions)

Marine Litter Action Plan for Wales

1. A strong evidence base – build an understanding of what works, recognising that different types of litter requires different solutions, to inform the action plan

- 1.A** Undertake a review with all Local Authorities in Wales of effective practice in reducing litter highlighting riverine pathways and specifically with coastal authorities on managing marine litter with support of WLGA (Welsh Local Government Association)
- 1.B** Undertake a review of practice and build connections with marine litter action groups across UK, EU and globally and specific initiatives (such as the Global Ghost Gear initiative)
- 1.C** Build links with relevant Higher Education research projects – involve Higher Education institutions in Wales and build partnerships with other leading research centres e.g. Plymouth University
- 1.D** Review the evidence base to establish agreed communication messages around sources, spread and impact in Wales to provide a coordinated message

2. Focus on preventative action to prevent the problem at source as core strategy

- 2.A** Identify priority preventative behaviour change actions and work with lead partner campaigns (e.g. Welsh Water Stop the Block)
- 2.B** Targeted engagement on preventative interventions through working with producers and retailers to pilot innovative change through voluntary led action
- 2.C** Identify opportunities for further legislative change within devolved powers to promote preventative action as part of extended producer responsibility.
- 2.D** Focus on education work to give a higher priority on impacts of marine litter education programmes in schools
- 2.E** Review and apply necessary enforcement measures as part of long-term prevention
- 2.F** Ensure long term investment in coastal infrastructure to protect the marine environment from sewage related debris and other waste (e.g. fishing gear)

3. Involvement of communities of place, communities of interest and users of the marine environment to develop and implement solutions

- 3.A** Identify a small number of pilot communities e.g. coastal; riverine (possibly linked to Welsh Government Visit Wales investments) to lead an integrated approach involving public, councils, businesses, marine users to include use of new non-plastic biodegradable materials, piloting awareness raising with visitors, behaviour change interventions e.g. visual messages, placing and type of receptacles.
- 3.B** Build specific programmes with tourism businesses and coastal attractions as key partners with a strong business interest working with Visit Wales
- 3.C** Riverine litter input is estimated to be a major contributor, but there is no comprehensive information about the amount of litter being transported through rivers into the sea. Identify pilot 2 contrasting river catchments to undertake a development project e.g. linked to Western Wales and Dee River Basin Management Plans
- 3.D** Our geographical location means that there will need to be continued focus on coastal clean ups. Develop a more collaborative approach across key organisations to increase impact, recognising there is currently overlap between activities such a volunteer beach cleans.
- 3.E** Introduce a Fishing for Litter scheme that is appropriate to the Fishing fleet in Wales funded through EMFF
- 3.F** Work with key marine user groups to Identify behaviour change interventions that can enable improved practices

4 Integrated working to maximise economic, social and environmental outcomes

- 4.A** Ensure links and support across all relevant Welsh Government policy areas (e.g. ensuring marine litter is captured as a risk to ecosystem benefits in coastal area statements)

- 4.B Use Visit Wales 2018 “Year of the Sea” as a focal point to raise awareness
- 4.C Work with Port Authorities to continue to improve facilities
- 4.D Build partnerships with retail outlets and coastal attractions
- 4.E Review requirements re prevention of litter within relevant Government and Local Authority grants
- 4.F Develop circular economy opportunities for new product development from marine waste drawing on the Circular Oceans agenda

5 Monitor the impact of interventions in achieving long term change

- 5.A Report against the contributions made to the implementation and review of the MSFD with respect to marine litter
- 5.B Ensure consistency of surveying data collected by volunteers
- 5.C Report annually against actions undertaken through the Marine Litter action plan
- 5.D Recognise initiatives that are having an impact through relevant national awards etc
- 5.E Review and disseminate through an annual stakeholder event

Appendix 2: Eco-Schools Marine Litter Workshops

Day of Action – Marine Litter (2D, MLAP)

The Welsh Government funded ‘Days of Action’ on litter and waste were undertaken in 10 schools across South Wales between January and March 2019. Most pupils engaged in the action days were KS2 pupils (age 8 – 12). 1 action day was held with KS3 pupils.

Each school planned their own environmental day of action which centred around the theme of marine litter. As part of their action day all schools were provided with a workshop on the topic (run by a KWT education officer), outlining the threats, damage and consequences of littering within the marine environment. Some schools participating took part in community litter picks to help them explore the extent of littering issues in and around their school.

Workshops began with pupils exploring a series of facts relating to marine life, litter and plastic pollution. This was followed by a session on entanglement, and further lessons on the journey of litter from land to sea. During the session pupils were tasked with finding items of litter on a make shift beach and to think about how each item had reached the beach. Most pupils were unaware of how marine litter enters the ocean from a number of land-based sources.

In order to gather information from pupils on solutions and messaging pupils were tasked with coming up with a series of messages or opportunities that they felt would be best tackle the issue of marine litter. Across the board it was overwhelmingly clear that pupils were engaged with messaging around the harmful impact of marine litter to wildlife and were keen that there was an increase in public understanding of this issue generally.

Some of the key messages and solutions are highlighted in the school action plans below:

“We should design things to help. What about netting drains?” (Y5 pupil).

“What about having a giving bin for plastic bottles that would give you tokens” (Y6 pupil).

“Put messages of plastic pollution on Instagram, Facebook, Snapchat and WhatsApp” (Y6 pupil).

“Every month have a litter day where everyone picks up litter” (Y4 pupil).

“I would like to see more recycling bins on the beach so people can use them” (Y6 pupil)



Image: Children's work on litter messages. © Keep Wales Tidy



- Put signs up everywhere by beaches
- Make more bins available around the beach
- Make a video for TV telling people not to litter
- Shock people with what would happen if they keep littering so they stop
- Get stronger bins
- Make posters about stop throwing rubbish

Litter less



Image: Children's work on Litter messages. © Keep Wales Tidy

The Litter less project is a project aimed at encouraging Eco-Committees to think of innovative ways to tackle litter around their school and within their local community. This year Keep Wales Tidy have run the project with 20 schools across Wales. All schools have been actively engaged with environmental improvement projects for a number of years.

Schools are asked to take action on litter in their school grounds and in their community over the course of two school terms to implement a behaviour change campaign with pupils' staff or parents and monitor the impact that their interventions have. Most schools have chosen to develop a series of anti-littering messages and/or videos, however other activities include awareness raising sessions, creating colourful signage, developing a song or a production, introducing a competition to engage the whole school.

As part of the programme schools are required to collect a beginning measurement the weight of the Litter (or Waste) from which they will try to improve. Continuous measurement is undertaken to ensure pupils are able to monitor effectively the success of their interventions as they are put in place

Pupils will complete a short questionnaire on their attitudes towards littering and their campaign.

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