



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

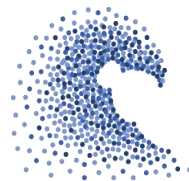
---

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



© Copyright Information: All images used are open source unless otherwise stated.

Front page image: Full page image of Llandudno sea front

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

## Contents

Glossary .....	3
Executive Summary .....	4
Future considerations .....	6
Introduction.....	9
Litter in Wales .....	9
Beachwatch & LEAMS data analysis.....	12
Identifying and using data .....	19
Local Authority Interviews .....	20
Summary of Findings.....	21
Persistent issues .....	22
Strategies & Management .....	23
Partnerships & Collaboration .....	26
Communication & Education .....	28
Infrastructure & Cleansing .....	30
Enforcement.....	31
Observations .....	33
Welsh Government .....	33
Local Authority .....	34
Other Sectors.....	36
Appendix 1: Local Authority Interview Questions.....	38
Appendix 2: Local Authority Interview Dates 2018.....	38
Appendix 3: Workshop Summary – Using and identifying data.....	39
Appendix 4: Workshop Summary – Collaboration .....	41
Appendix 5: Workshop Summary – Tourism and Transients .....	43
Appendix 6: RCT separation from street cleansing in tonnes April – September 2018.....	44
References.....	45



## 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*

## Executive Summary

Marine Litter poses a significant threat to our oceans and the fragile ecosystems that rely on them and the problem is projected to be increasing. Although there are many visible manifestations of this problem, along shorelines or floating accumulations of plastic in the Pacific, much of the debris is not seen as it lies deep on the ocean floors or has broken down into tiny particles. There are no oceans where these particles have not been found and there is increasing evidence<sup>1</sup> that the problem extends to rivers and freshwater areas too.

Despite being a small country, Wales has proven that it can be a leader on the global stage. It is small enough in size and population to benefit from national scale analysis and can engage many key stakeholders in identifying issues on the ground to inform evidence-based policy decisions. This research has aimed to capture the data, experiences and trends across the country on the sources, challenges and opportunities for tackling litter and current prevention strategies and communication. It extended to all 22 authorities in Wales and was not restricted to coastal areas alone.

The Marine Litter Research Partnership, Keep Wales Tidy, Eunomia and the Marine Conservation Society, have investigated all of the available data and Local Authority strategies to tackle litter in Wales. This report brings together three investigative elements into one report;

- Discussions with every Local Authority in Wales on interventions, strategies, cleansing regimes, volunteer support and communication
- The findings of the Litter Strategy Workshops which ran in three different regions in Wales between the 12<sup>th</sup> -18<sup>th</sup> November 2018 and;
- Spatial analysis of Local Environment Audit Management Surveys (LEAMS) and Beachwatch data from the past three years.

Through the course of these investigations, a number of opportunities were identified for local and regional action. As a result of the current public momentum, business engagement and an unprecedented number of volunteers, tackling litter issues has never been so present in the public mind and so high on political agendas. It is particularly encouraging to see how many Local Authorities in Wales have developed (single-use) plastic reduction plans for their own estates and that many are in the process of reviewing their procurement. It would require further work and analysis to attempt to estimate the amount of single-use plastic which has been taken off the market as a result of these efforts, but it is likely to be significant and is symbolic of a wider consumer shift.

The overwhelming challenge for Local Authorities is to make the move from reactive cleansing to proactive prevention. Given the current public momentum and engagement on litter issues, the lack of capacity in Local Authorities to run any litter awareness campaigns or initiatives at any scale represents a real missed opportunity. Although there are a couple of examples of Local Authorities adopting and supporting citizen campaigns, the only marine litter campaigns are funded projects which have brought in additional resources to some of the Special Areas of Conservation. Funding models and restrictive criteria have also had markable impact on the scope and limitation of many projects in Wales which have affected partnership working and best practice. Although there is significant scope to increase local and regional collaboration, particularly on communication efforts, this would be greatly facilitated by more standardisation of approaches and relevant management systems.

Standardisation of approaches and processes for activities such as enforcement and even recycling (including 'on the go') would remove many of the barriers to regional collaboration and the sharing of resources. Approaches to litter, recycling, infrastructure, cleansing, data collection and enforcement all vary so significantly that collaboration and shared communication currently presents a real challenge. As a result of this, collaboration, particularly across regional boundaries, is limited. The biggest opportunity identified through data analysis and conversations with Local Authorities is to structure collaboration

around spatial pathways (e.g.: rivers, roads, rail networks or major footpaths) and is considered here as a future model for collaboration.

The unprecedented amount of public awareness and volunteer activity in this area has been identified as an opportunity across Wales, not least due to the heavy reliance of Local Authorities on volunteer forces to cleanse beaches (both in season and out of season) and green spaces. The awareness of marine litter as a result of the '*Blue Planet II effect*', has served to increase public engagement significantly. It has also served to consolidate litter, waste, recycling and other interrelated issues in the public mind and has turned attention to the role of government and the producer and retail sectors. At the time of writing, a consultation is underway for a revision to Extended Producer Responsibility (EPR) legislation for packaging in the UK and a Deposit Return Scheme for drinks containers. Robust Producer responsibility requirements could have a transformational effect for covering the costs and impacts of litter but will also further support the required cultural change for reduced consumption and increased public awareness.

The current momentum against marine litter and public and political engagement on the issue presents an ideal time for change and for Local Authorities and Welsh Government to take action. The efforts of both individuals and the public sector is by no means confined to coastal areas alone and there is increasing recognition of rivers and sewage ways as pathways to the ocean.

Commuters, visitors and other transient populations (such as students) represent a challenge to engagement in environmental behaviours as there is increasing recognition that people's actions do not automatically transfer to outside the home (particularly when driving). Cohesion across household waste, recycling and litter in a policy and communication context may be required on a national scale to remove actual or perceived barriers to responsible behaviours. These efforts are not the sole responsibility of Welsh Government or Local Authorities alone but need the coordination and support of multiple sectors if we are to move toward the cultural change necessary for a more sustainable consumer society. However, although education, engagement and awareness are key elements for future action, effective policy and regulation aimed at waste reduction can serve as catalysts towards large-scale societal change.



## Future considerations

### Welsh Government

- To continue to work with the UK government and stakeholders to develop and implement a fair and robust legislative framework for Producer Responsibility and to support the associated financial mechanisms for industry and consumer change such as a nation-wide Deposit Return Scheme.
- To consider the creation of a Litter Prevention Strategy and action plan which recognises the interrelation between litter, waste, recycling on-the-go and fly-tipping and the 'pathways' to the ocean.
- To consider the development of a uniform system for 1/ enforcement and 2/ fly-tipping data.
- To explore the development of a National Litter Database for litter and support the sharing of best practice.
- To explore how Wales could move towards a more standardised system for recycling in the upcoming review of Towards Zero Waste (Wales) Strategy.
- To explore the possibility for the uniformity of recycling material, street recycling facilities, design and guidance with the long-term aim of reducing disparity between regions in Wales.
- To develop national guidelines on litter infrastructure which would include advice on bin installation, location, design and other issues which individual Local Authorities are struggling to tackle singularly.
- To introduce to all sector public funding requirements and events licencing criteria for (single-use) plastic reduction and sustainable waste and litter management.
- To increase investment and support for Refill Wales promotion and publicity.
- To consider environmental taxes as a way of supporting local action on litter prevention and cleansing and promoting behaviour change such as a 'Tourist tax' or levies on single-use items similar to the carrier bag charge.

### Local Authorities

- To establish inter-departmental groups and engage with other 'anchored' institutions such as NRW, NPA's (if applicable), Police, Trunk Road Agencies, the Water Industry and Universities as well as strengthening and formalising support for community actors to work towards litter strategies and action plans based on available data and spatial considerations to create a preventative approach to tackling litter and related issues at source.
- To consider aligning future litter prevention work along spatial pathways (rivers, roads, rail network or footpath networks) and engaging relevant stakeholders along these lines.
- To implement COPLAR zones within the authority and mapping litter hotspots onto GIS, providing an immediately practical way for Local Authorities to identify hotspots and direct resources accordingly.
- To develop systems for sharing data on type, location and scale of accumulations with drug and alcohol charities, police and the Welsh Government Substance Misuse Team, so that support and the provision of needle exchanges can be directed accordingly.
- To implement methods for the separation of street / beach cleansing waste for recycling, replicating best practice.
- To consider how to better integrate recycling and cleansing internally and how to maximise resources, strategies and education and engagement.
- To consider establishing a national or regional communications network with tourism agencies to collaborate on key anti-litter campaigns or messages.
- To work with the third sector to develop behaviour change messages to promote responsible waste behaviours and provide cohesive messages around recycling on-the-go.
- To increase communication and support for volunteer groups, ensuring that community actors are supported by more than one official in case of staff changes.

- To review and explore enforcement practice to ensure effectiveness and positive practices which are transparent and have public support.
- To work with Welsh Government to explore the solutions to current enforcement challenges such as data sharing, magistrates and other processes.
- To work with Welsh Government to explore the current challenges surrounding fly-tipping data.
- To review procurement across all estates to limit single-use plastics, including education and health boards, and to share best practice through Local Authority forums and Public Service Boards.

## Other Sectors

- Welsh Government, One Voice Wales and other partners should explore the opportunities to increase the role of Town and Community Councils in litter prevention and awareness aligned to local data and strategies.
- The third sector, particularly NGO's in environment, education and land management, need to be supported to come together to develop and share coordinated messages on marine litter, education and engagement to facilitate and promote positive behaviour change.
- Retail and industry research on environmental health regulations and implications for initiatives such as Refill or other reuse policies should be shared through existing networks to minimise replication, share best practice and to meet common goals. For example, establishing industry rules for the use of biodegradable materials.
- Welsh Government and Visit Wales should consider investing into research which demonstrates the economic, social and environmental impacts of litter on tourism and tourist destinations.
- Further research areas identified also included an analysis of the practices and management of Port and Harbour Authorities in Wales and how best to support sharing of best practice.
- Behavioural research into visitors and 'holiday psychology' and littering from vehicles ('traffic psychology') require further exploration.
- Industry has to play a significant role in communication of (single-use) plastic reduction and consumer understanding which must include a clearer system of item labelling and transparency. For example; Relevant products should make every effort to adopt the Water Industry Specification 4-02-06 for 'flushability'.



*Wales, big enough to make a difference,  
small enough to make it happen*



Full page image: Volunteer's litter picking on beach in Flintshire. Photo courtesy of North Wales Wildlife Trust

## Introduction

[Keep Wales Tidy](#), [Marine Conservation Society](#) and [Eunomia Consulting](#) have undertaken this research in on behalf of Welsh Government to explore current interventions and analyse the available data on litter and litter strategies across Wales.

This element of the research aimed to engage with all Local Authorities in Wales to gain an in-depth understanding of local and regional strategies and interventions to tackle litter and the tools and resources which are at their disposal. Alongside these interviews, the partnership ran three regional workshops in order to fully understand the local and national challenges and to identify the opportunities and barriers faced in using data effectively, developing and sustaining collaboration and some of the unique issues presented by tourism and transient populations.

Spatial analysis was also carried out with two datasets. All Wales [LEAMS](#) data from the street cleanliness surveys carried out by Keep Wales Tidy and UK-wide [Beachwatch](#) data which is coordinated by the Marine Conservation Society. These two datasets represent the only national sources of information on litter in Wales and both provide breakdown of source, material and type of items found on streets and beaches respectively. The last 3 years of these datasets have been combined and mapped spatially across Wales for the first time.

Other elements of this project will include a global practice review which will outline some of the current projects, initiatives and organisations working in the field in Wales and beyond. A review of current academic research and publications in relevant fields has also been explored as part of this research.

## Litter in Wales

The United Nations defines marine litter as *'any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment'*.<sup>2</sup>

Marine litter poses a growing threat to the aquatic and coastal environment. Up to 12.7 million tonnes of plastic enters the world's oceans every year, equivalent to dumping one garbage truck of plastic per minute into the world's oceans.<sup>3</sup> This causes significant problems for wildlife and aquatic ecosystems, but it also has a detrimental effect on our health as millions of tiny plastic particles end up in the fish we eat and even the salt we consume. There is also increasing direct costs to Local Authorities and our shipping industry. Indirectly, it is thought that litter suppresses tourism by between 1-5%.<sup>4</sup> It has been estimated that around 80% of marine debris is from land-based sources and the remaining 20% is from ocean-based sources.<sup>5</sup> There are no oceans where these particles have not been found and there is increasing evidence<sup>6</sup> that the problem extends to rivers and freshwater areas too, making this a truly global issue with far reaching implications.

By its very nature, litter is an ever changing and movable problem which presents a challenge to measure and record accurately. This is particularly complex in the marine environment where debris is affected by the ever-changing factors of tides, currents, weather and visitor populations. Wales' location means that pollution and debris are carried large distances to our shores by the North Atlantic Drift making any identification of source largely impossible.

Extensive and consistent LEAMS and Beachwatch data are available for Wales. Although these datasets provide just a snapshot of the problem, both surveys have been undertaken for many years and are useful in showing temporal analyses and patterns. Many areas of the UK have ceased to undertake equivalent surveys which means that there is virtually no data at all for those areas which can feed into this sort of analysis or be used as a baseline for measuring policy. Generally speaking, litter has decreased from first year baselines of both surveys although there are persistent issues and certain litter types have increased in recent years.

The fundamental constant however, is that all litter is the result of human behaviour.

As with many other environmental issues, to tackle this issue at scale we need to target the sources of the problem and address behaviour change as well as looking at other local and national policy instruments to enhance the effectiveness of messaging and infrastructure to achieve large-scale social change. There is no panacea, different problems require different solutions and interventions. The term 'litter' and all that it encompasses needs to be seen as a series of different behaviours, sources, types and motivations.

Local Authorities and other public landowners are the Principal Litter Authorities in Wales, responsible for the cleansing of public land. It is unfortunate that these authorities are exclusively focused on litter cleansing with little focus on communicating the dangers of litter entering the (marine or terrestrial) environment. Many cannot accommodate prevention or awareness activities, despite the comparative cost of dealing with this issue at its 'end point' rather than at source. This research will hopefully provide the scope for a more holistic approach to preventing litter on land and at sea and outline the opportunities for collaboration and increased engagement both within and between Local Authorities and other sectors.

Future action to deliver the Marine Litter Action Plan (MLAP) for Wales will need to recognise the multifaceted nature and impacts of litter and marine pollution on areas outside of its traditional role in 'environment' to other realms such as tourism, health and wellbeing, transport and housing. This provides an opportunity for new partnerships and collaboration. The Wellbeing and Future Generations (Wales) Act offers a unique opportunity to look at local environmental quality through a collaborative and long-term lens and to come together to cement new commitments and partnerships, which are much needed in times of restricted budgets and an uncertain legislative future in Wales.

The Litter Strategy workshops, coordinated as part of this research, identified a number of opportunities and challenges for preventing litter at source. The biggest challenges and opportunities identified overall are listed below. It is interesting to note that the majority of issues were related to communication.

#### **Top identified challenges**

- 1) An overall lack of resources (i.e. time, money and/ or staff). This included the associated issues with a lack of continuity of staff and the associated loss of knowledge when working on projects or partnerships, particularly community groups.
- 2) The complexities of affecting cultural change and the 'disposable society'.
- 3) The clarity of messaging surrounding plastic use. This included a lack of standardisation of data and of messaging especially around recyclability and materials but also the complexities created by the 'Plastic Free' strapline.
- 4) The complexities and realities of achieving a circular economy.
- 5) The lack of capacity to move away from cleansing to prevention.
- 6) The (dis)engagement of young people.

#### **Top identified opportunities**

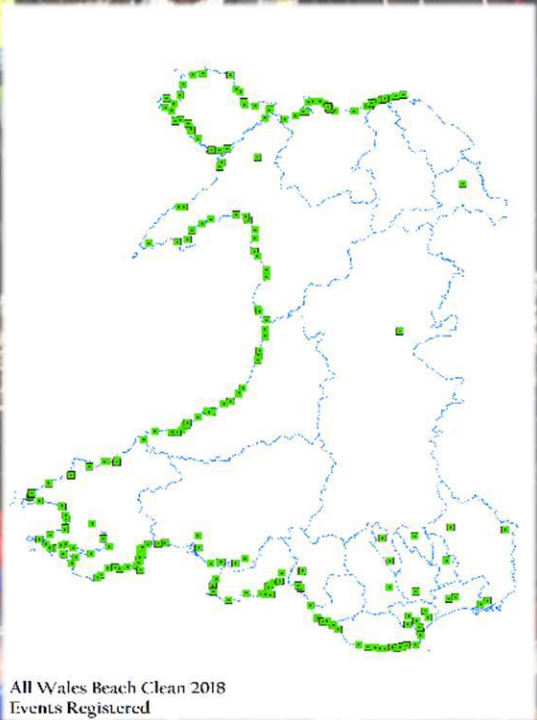
- 1) The current political will and public momentum is a significant opportunity to introduce change and to engage in new partnerships with all sectors.
- 2) Taking the opportunity to make and maintain effective partnerships with the increased opportunities for regional collaboration.
- 3) The new (proposed) Extended Producer Responsibility legislation may make new funds available to tackle litter and/ or undertake prevention work.
- 4) Current media coverage offers the opportunity to engage and communicate with people who would not usually be aware of the issue.
- 5) Capitalising on the 'Plastic Free' vision will support a move from a reactive to a proactive approach.
- 6) Capturing and harnessing the current unprecedented numbers of volunteers to focus on areas of greatest need.
- 7) Education of children and young people.



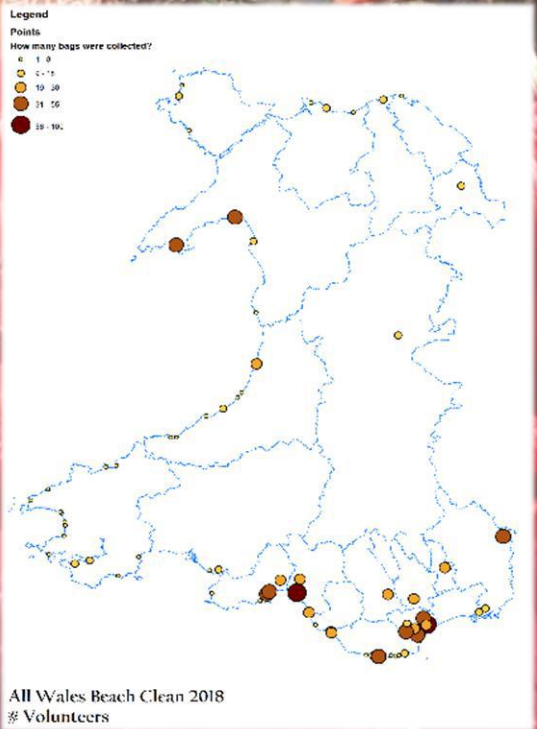
# The All Wales Beach Clean 2018

The All Wales Beach Clean took place between the 14<sup>th</sup> - 30<sup>th</sup> September 2018 with the aspiration of cleaning every beach in Wales. The fortnight long event was a collaboration of Keep Wales Tidy, the Marine Conservation Society, National Trust and other partners and was funded through the Regional Tourism Engagement Fund (RTEF) supported through the Welsh Government Rural Communities - Rural Development Programme 2014-2020. The event created new partnerships and demonstrated the significant breadth and scale of volunteers across Wales.

283 clean ups events took place across beaches and rivers, removing 3,800+ bags of litter with the involvement of over 5,400 volunteers!



All Wales Beach Clean 2018  
Events Registered



All Wales Beach Clean 2018  
# Volunteers

Full page image: Volunteers with collected bags of litter from the All Wales Beach Clean. © Keep Wales Tidy



## Beachwatch & LEAMS data analysis

Marine litter or debris is a local, national, regional and globally important topic and will be for decades to come. The prevalence of plastic debris especially, on beaches, the ocean seafloor, and the gyres themselves is especially worrying, due to the lack of degradability and environmental impact, particularly on wildlife. Yet the production of plastic is set to increase globally. Currently, there are no agreed methodologies for measuring marine litter and, due to the complexities of measuring movable items and microplastics, there will be no perfect method for capturing this accurately. There is, however, an increasing consensus within the research sphere and this analysis has tried to mirror other localised examples of where this has already been undertaken, most notably in the US.

This project looked at the two national datasets available for Wales; the Street Cleanliness (LEAMS) Surveys undertaken by Keep Wales Tidy across every Local Authority every year and the Beachwatch data which is an annual event. **All maps from this project can be viewed on line [here](#).**

This data analysis had several specific objectives in regard to the relevant available data:

- How much marine debris occurs in and around Wales?
- Is any of this marine debris determined by terrestrial sources, that LEAMS can identify?
- Are there specific littered items that are most [and least] abundant?
- What is the local and/or regional variation to both marine and terrestrial litter?
- What are the hot spots where litter of both types is most prevalent?
- Do patterns of distribution and abundance of marine and terrestrial debris change over time in the same surveyed area?

Three years of LEAMS data was input and analysed alongside MCS Beachwatch data from 2007 to Sept 2018. A considerable amount of data clean-up, preparation, and correction had to be undertaken prior to any data analysis and input into GIS. 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. This variability however is well known wherever data is collected from citizen science surveys or any volunteer effort, especially clean-ups.

Every MCS survey was normalised first by beach length, standardising each to a length of 100 metres. However, the final adjusted litter count was the result of the following equation:

$$STD[Count] = \frac{Total\ Count\ [Total\ Number\ of\ Items\ of\ Litter\ Recorded]}{Survey\ Distance\ [Beach\ Length\ in\ meters] \times (Survey\ Duration\ [time\ in\ total\ minutes] \times \#\ of\ volunteers)}$$

This equation result then provides each MCS Beachwatch location with a standard count of items collected per person, per meter, per minute.

	Related to wildlife	Relate strongly to clean-ups	Relate strongly to industry
Fishing Gear	X		
Plastic Bags	X		X
Balloons	X		
Beverage Bottles		X	X
Cigarette Butts		X	
Caps			X
Sewage-Related Debris [Inc. Wet Wipes]		X	

Similarly, these specific categories of LEAMS data were extracted:

- Drinks-related litter
- Fast food-related litter
- Smoking-related litter

In any marine or terrestrial litter analysis, there are realistically only five ways to look at such data.

- Rank by Category [some combination of count, size, weight, etc]
- Absolute Load [number of items]
- Rank-Order Distribution [best-fit curve, regression]
- Multi-Nominal Model [relative frequency by type]
- Bayesian Hierarchical Model [probability based on load and category and frequency]

### **Spatial Analysis**

A number of options are open to investigate the difference in litter density between beach litter and inland litter. For each beach survey location, the mean number of items [per person, per meter, per minute] was calculated for all of the items listed above, in this case 10 km OS Grid squares. LEAMS data was subjected to “data binning” in the same fashion. These regions were then categorised by rank total of their mean standardised values from low to high. 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  $I^+$  statistic of spatial association, to determine if neighbouring survey locations had similarly high or low attributes [enough to be statistically significant].

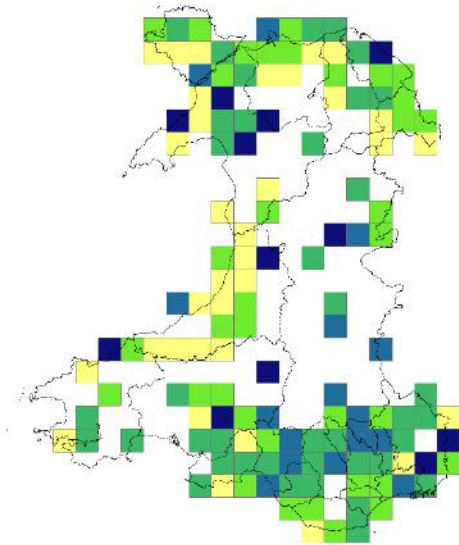
Similarly, river outlets and where watercourses deposit into the sea were mapped, to provide background data to match against Beachwatch data, and to provide assumed transport highways for terrestrial litter to the sea, given large rainfall or storm-surge events. All urban-waste-water treatment plant locations were also mapped. These locations should be used as checks, to determine if coastal sites at river outlets have higher debris loads.

The resulting mean averages for all Beachwatch data can be back-calculated using the provided equation to then provide average counts [amount of debris] a site should have at each location, regardless of year, number of volunteers, or time spent collecting debris.

---

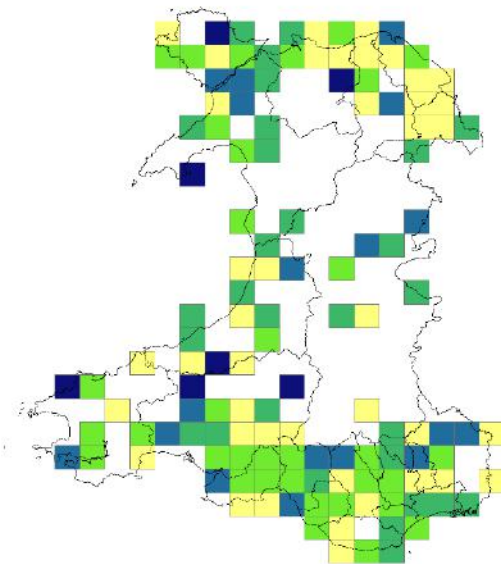
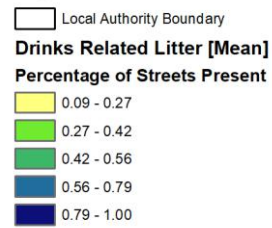
\* The Hot Spot Analysis tool calculates the Getis-Ord  $G_i^*$  statistic for each feature in a dataset. The resultant Z score tells you where features with either high or low values cluster spatially.

† 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



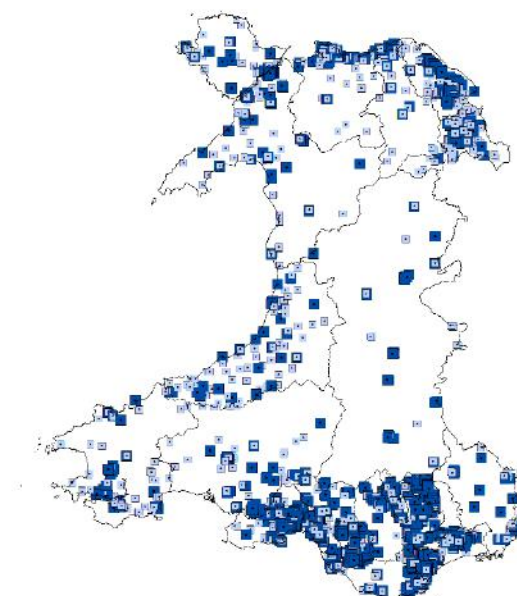
**Mean drinks related litter 2015-2017  
(LEAMS)**

**Legend**



**Mean Fast food packaging 2015-2017  
(LEAMS)**

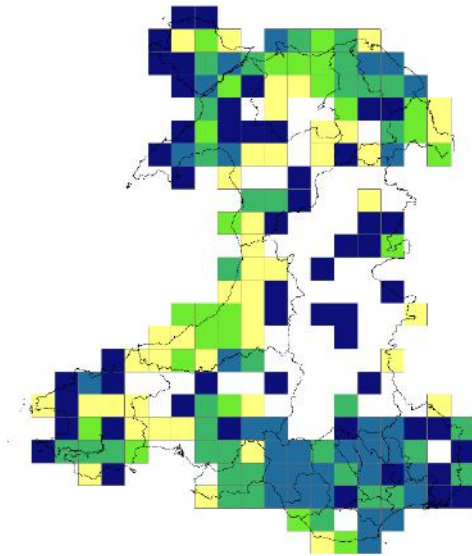
**Legend**



**Drink related litter 2017 (LEAMS)**

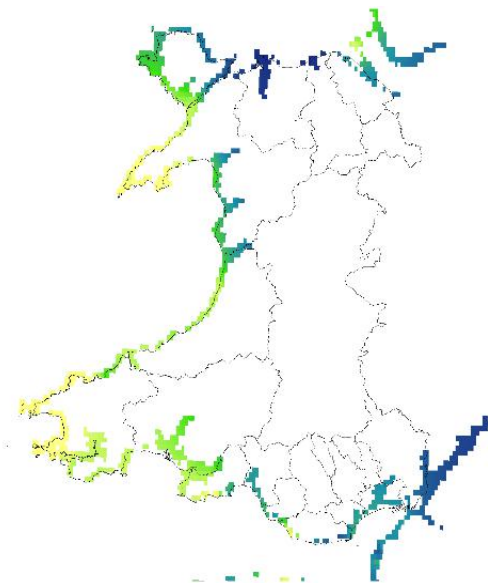
**Legend**





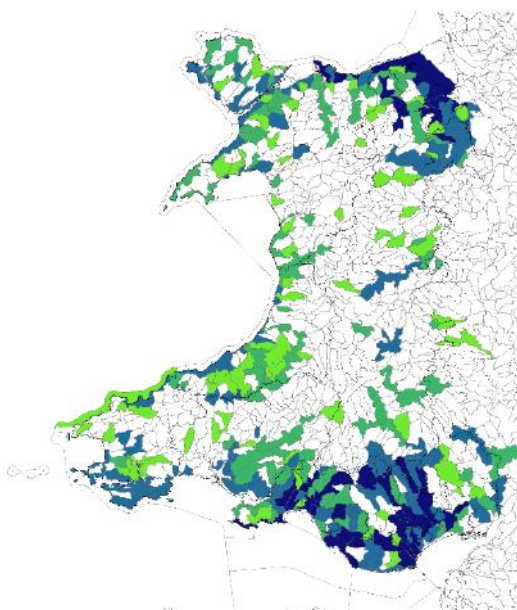
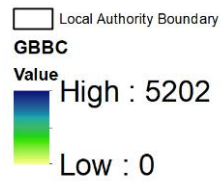
**Mean Smoking related litter 2015-2017 (LEAMS)**

**Legend**



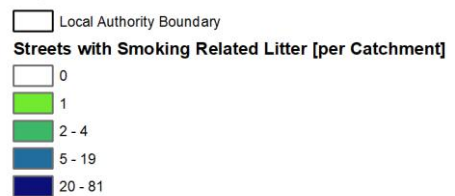
**Smoking Related Litter 2015-2017 (Beachwatch)**

**Legend**



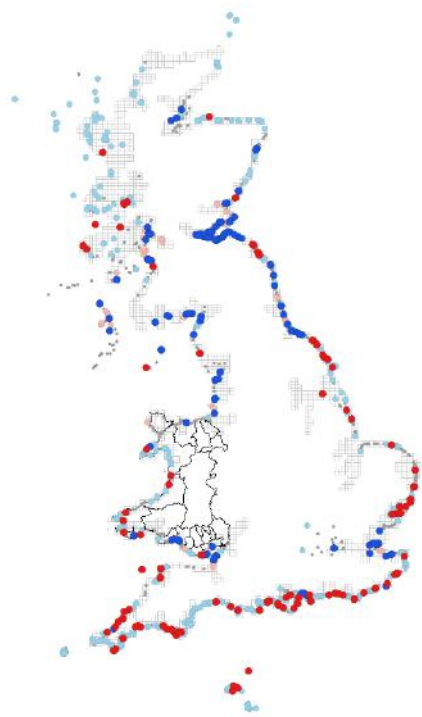
**Smoking Related Litter 2017 (Joint) showing water catchments**

**Legend**





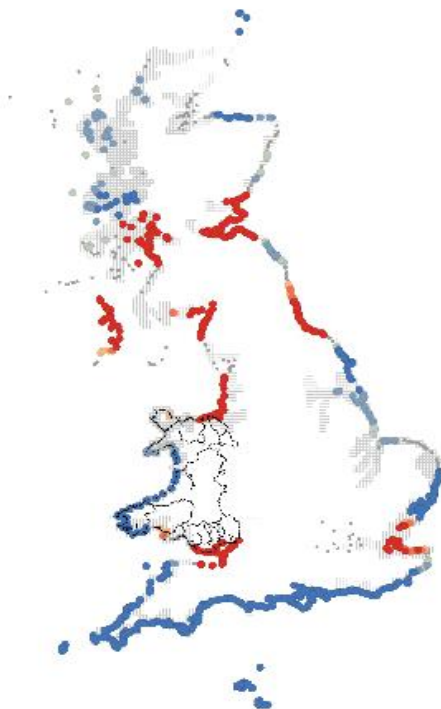
## Sewage Related Debris Hotpots using Moran I method



### Legend

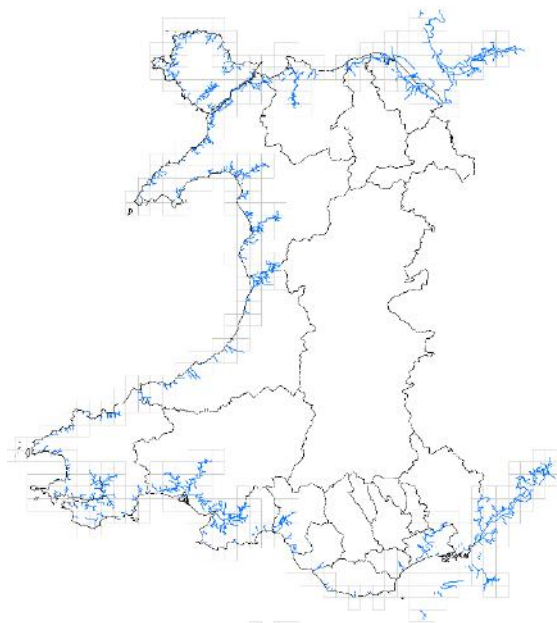
- Local Authority Boundary
- Not Significant
- High-High Cluster
- High-Low Outlier
- Low-High Outlier
- Low-Low Cluster

## Sewage Related Debris Hotpots using Getis Ord method



### Legend

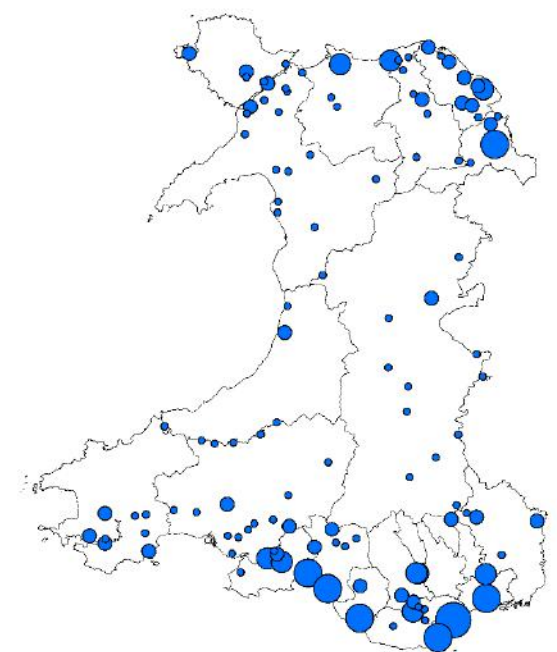
- Local Authority Boundary
- San HotSpot GETIS ORD**
- Gi\_Bin**
- Cold Spot - 99% Confidence
- Cold Spot - 95% Confidence
- Cold Spot - 90% Confidence
- Not Significant
- Hot Spot - 90% Confidence
- Hot Spot - 95% Confidence
- Hot Spot - 99% Confidence



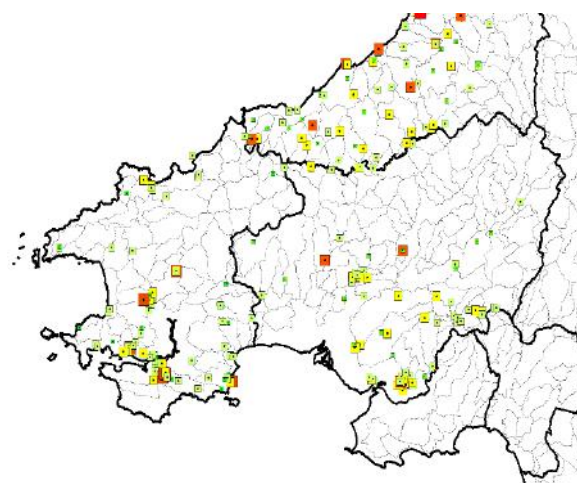
Sea exit locations of ALL watercourses

**Legend**

- Primary Exit Watercourses
- Local Authority Boundary



All wastewater treatment locations



Example of LEAMS Grade overlaid on water catchments

**Legend**

**LEAMS**

**Overall Grade**

- a
- b+
- b
- c
- d
- Wales\_Unitary\_Authorities\_2011
- WFD\_RIVER\_WB\_CATCHMENTS\_CYCLE2\_DRAFT

## Results and future considerations

Three years of LEAMS data provides a great start at analysing trends of terrestrial litter in the Welsh landscape. It would be ideal to provide more years' data to flatten out some of the peaks that exist in the data averages, to get a clearer picture of hot-spots of terrestrial litter.

Cigarette data is one of the few items of data from both MCS Beachwatch and LEAMS that can be directly combined with Census data (as around 20% of the entire population smokes, regardless of other mitigating factors). Particularly as LEAMS suggests a high percentage of all streets contain smoking litter, this should mirror itself with beach deposition, but does not. 'Holiday' destinations seem to have more marine debris relating to cigarettes than other areas suggesting that, as far as these items are concerned, they are more likely to enter the ocean directly and prevention on site could be more effective.

Unsurprisingly, most litter density occurrences correlate with areas of high population although this is not always the case and these instances demonstrate the impact of visitors and tourism on certain areas and the moveability of many commonly littered items. 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.

Understanding the role of riparian transport could assist in evaluating existing infrastructure, existing methodologies to handle storm-runoff or 'surge'-events and identify opportunities for effective investments in critical 'point-load' locations where litter is most often aggregated. An option could be to set up structured sampling around river systems, at specific 'hydro-nodes' where watercourses meet.

Mapping litter data spatially, particularly along pathways will help to understand the sources, types and routes of litter and help to target interventions to prevent litter making its way to the ocean. It is recommended that all Local Authorities undertake a review of their areas to fully understand these hotspots.

**More maps and analysis can be viewed [here](#).**



## Identifying and using data

Identifying and using data on litter was a dedicated topic at the Strategy workshops. Household waste and recycling is easy to measure but as soon as waste is consumed and disposed of outside of the home, it becomes much more complex to track and record. It is largely recognised however, that current data sets are not being utilised to their full effect and that particular litter types present particular challenges. Inadequacies or inaccuracies in data is an important issue to address at a local level as a lack of evidence can have an impact on how resources are directed.

Data for roadside litter is extremely limited due to the largely ad hoc nature of road cleansing and health and safety implications of working on high speed roads. Littering from vehicles is reported to be on the increase and a large number of Local Authorities identified it as one of their biggest current challenges and one that they find the most difficult to address. This is further exacerbated in many areas through challenges with working with the Trunk Road Agencies and other maintenance and construction contractors.

It should be noted that this is not an issue confined to the UK alone. Research by the Transportation Research Board in the United States stated that: *'The national effort to reduce the roadside litter problem is at present largely fragmented and under researched'*, there is a *'...lack of reliable data on the roadside litter problem'* and that *'Publicising the impacts of roadside litter likely would bring greater resources to bear on the roadside litter problem.'*<sup>7</sup>

There is a significant opportunity to align collaboration and share resources along spatial pathways which could include major roads. Past [research](#) has identified a number of opportunities for partnership working on the issue although robust recording of data from roadsides may not be a solvable problem.

A similar issue was identified with the recording of fly-tipping across Wales – an issue which is not just confined to land. Current systems are not robust enough for policy makers and recording, enforcement and approaches vary significantly between Local Authorities. This not only creates issues for data collection but makes enforcement across borders a significant challenge. It was suggested that one standardised system could be introduced which covers, Waste Data Flow, Fly-tipping recording (such as Fly-Mapper) and internal management systems. Uniformity of these systems (including enforcement) would also provide enough data to allow for evidence-based polluter-pays policies at a national level.

It was suggested at all workshops that there is an opportunity for establishing something like a national litter database for litter collected 'on the ground' and the ability for community groups to be able to feed into this.

There is a lack of robust data on the amount and types of waste collected as litter currently and could be a crucial aspect of understanding the sources of litter and types of litter generated. There are large variances in data collection and source identification at a local level and few Local Authorities could reliably report the amount and type of litter from a specific location in their area. Unless data collection is improved, future policy will lack robust evaluation and monitoring. Although it should be noted that no system will ever provide perfect analysis.

Many community groups do collect litter and separation data and could be a useful tool for local and national benchmarking. However, to avoid problems with consistency and the variation between Local Authorities, it is likely this would require national guidelines to be introduced. This could include a standardisation of the way that litter is reported to principal litter authorities across Wales as many are now using local apps to report incidents. It was suggested that if the public and community groups had a clear understanding of what will happen to records, who is using them and what for, they can capture the most useful information and as long as it is backed up with appropriate action, would facilitate engagement with their local environment and local democratic institutions. Keep Wales Tidy has kicked off these efforts in 2019 as part of the Caru Cymru Project through the roll out of the Epicollect app.





*Image: Blue Flag at Tenby Beach. ©Keep Wales Tidy*

Similarly, mapping data spatially on to GIS would provide an immediately practical way for Local Authorities to identify hotspots and direct resources accordingly. All Local Authorities will have the capability to do this although GIS functions often sit within planning departments, rather than environmental services. Accurate and up to date zoning of Local Authorities, based on local knowledge would also maximise the effectiveness of street cleansing resources and the usability of LEAMS survey data to feed into preventative strategies. Further suggestions for internal data collection and the use of zoning were discussed in detail at the Litter Strategy [workshops](#) in November.

In terms of using and sharing data, it was suggested that specific data on drug related litter could be shared directly with drug and alcohol charities and the Substance Misuse team in Welsh Government so that support and the provision of needle exchanges could be directed accordingly.

Many supermarkets and retailers have introduced plastic reduction policies. Morrison's for example, allows customers to bring in their own containers when buying fresh produce, meat or fish. The background to the introduction of this policy would have been backed up by research on environmental health regulations and implications and the sharing of this research with other retailers may facilitate replication of good practice across the sector.

Knowledge around environmental health research and implications could also be shared between Local Authorities and town councils to support the take up of the Wales Refill Scheme and the installation of water fountains in public spaces.

## Local Authority Interviews

Interviews were undertaken with every Local Authority in Wales to assess the ways in which they are currently approaching the problem of litter across their areas. Discussions gathered information on current (internal and external) management and strategies, campaigns, enforcement practices and partnerships as well as specific street cleansing activities.

More detailed information on the topics discussed with Local Authorities can be found in [Appendix 1](#). Dates of Local Authority interviews are detailed in [Appendix 2](#).

## Local Authority findings - at a glance

- 12 Local Authorities have undertaken or are in the process of internal reviews for single use plastic reduction
- 6 of these are accompanied by statements of intent at a council level
- Top 3 current challenges identified were: resources, litter at roadsides and town centres
- All Local Authorities are struggling with 'recycling on the go'
- 65% of respondents said fast food packaging and drink related litter was their biggest and most persistent problem
- All Local Authorities rely heavily on volunteers for cleansing activities
- 3 Local Authorities have a litter action plan or strategy
- 4 Local Authorities separate the recycling from their street cleansing waste
- Significant resources are deployed to cleanse areas of litter in visitor season

## Summary of Findings

When it comes to tackling litter, Local Authorities are almost exclusively focused on cleansing, rather than prevention, with many citing a lack of resources to undertake additional activity over and above statutory duties. Although there were very few examples of cross border collaboration on this issue, there were some excellent examples of partnership working and engagement with the private sector and NGO's.

Every Local Authority works informally with volunteer groups in their area (largely facilitated through the relevant Keep Wales Tidy officer) and all Local Authorities cited their heavy dependence on volunteers and community groups to undertake cleansing activities, particularly on beaches and green spaces. The unprecedented amount of volunteer activity in this area currently was considered a great opportunity. It is widely recognised by Local Authority staff that supporting litter picking activities have much wider benefits as many go on to do other work in the community thereby facilitating social cohesion and contributing to wider environmental improvements. It is absolutely crucial that we fully recognise and fully support volunteer activity in this area and that the importance of the Local Authority – Community partnership is recognised and encouraged to continue. This partnership is perhaps the most fundamental factor in litter cleansing and prevention and Local Authorities play a key role in third sector liaison, free disposal of collected litter and fly tipping, training guidance and direct support.

Only three Local Authorities in Wales have litter strategies or action plans in place and only one is operating a current litter prevention campaign across the authority. Reliance on the third sector to provide messages and resources to tackle litter was standard practice. Some of the coastal authorities, however, do have consistent communications efforts on the issue which have been taken up recently with a number supporting the [#2minutebeachclean](#) boards at their more popular amenity beaches. In some areas, this has been extended to town centres and adapted as a '2-minute street clean'.

There was a general feeling across the board that waste issues or, more specifically, statutory targets for recycling, overshadow litter work and the majority of authorities that have education officers within environment directorates focus their efforts on recycling and waste awareness issues. As each Local Authority operates different structures, the integration of these services is easier in some areas than others. A significant opportunity for greater alignment of these services (and public communication) is the separation of litter from street cleansing. There are 4 areas which currently practice this (two at source, two at facility) with positive results. This is significant not only due to the fact that it provides these authorities with additional income, but every Local Authority in Wales is struggling with the challenge of recycling 'on the go' and the amount of lost resources can be a powerful message to address both issues. Household recycling participation can be measured at a local level which allows targeted interventions to change behaviour accordingly. Street cleansing on the other hand, only collects total

*Image: Child using 2 Minute Beach Clean Board*



There are significant variations to approaches to both street cleansing and enforcement across all authorities and many areas struggle with implementing environmental enforcement at a scale which has a wide impact. Strategy workshop attendees suggested that a standardisation of approaches to recycling, cleansing and /or enforcement would be beneficial.

## Persistent issues

The biggest challenges for Local Authorities in tackling litter included issues around resources and high-use locations such as; roadsides, town Centres and visitor hotspots. Fly-tipping of domestic waste,





particularly for rural areas, was also a repeated theme. The issues of rurality and roadsides were also linked to the complexities of operating enforcement. Responses relating to food and drink packaging ending up as litter compared to other sources suggests that there is a significant amount of lost resources ending up in the environment and (for those authorities who do not separate their cleansing) a loss of income. Although this won't address the issue at source, separation practices should be replicated across Local Authorities where possible to reduce landfill of valuable materials.

Options for tackling littering from vehicles needs to be considered further and more trials are needed to explore how behaviour change messaging can be tailored toward 'Traffic Psychology' as it is evident that interventions for pedestrians are not effective for drivers. Keep Wales Tidy has explored some of these options in a 2016 [research paper](#) and have plans for a national campaign in 2021.

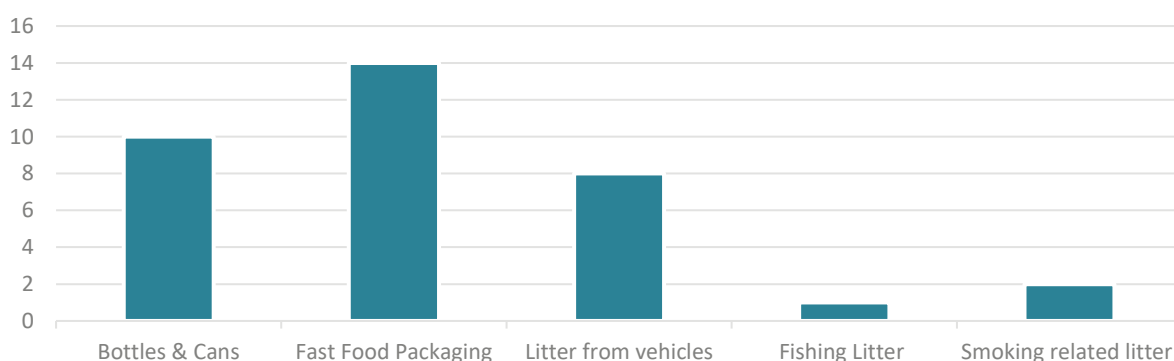
At a national level, work is being undertaken to consider new EPR legislation (for packaging) and mechanisms such as a Deposit Return Scheme for the UK which could have a significant impact on producer responsibilities and costs for cleansing but may also bring about the required cultural change to affect an increase in participation in recycling outside of the home.

## Strategies & Management

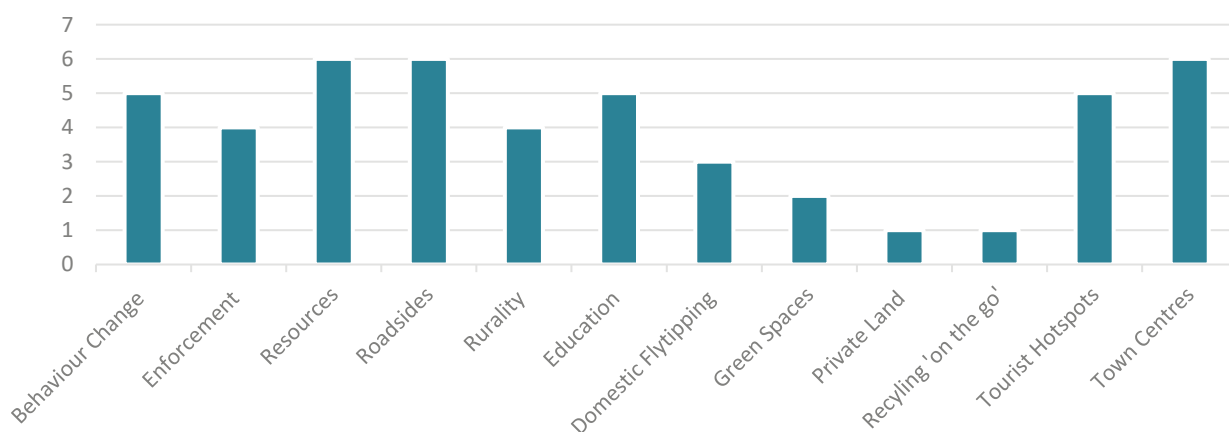
There are just three authorities which have an action plan or strategy in place for tackling litter (2 new and 1 in progress) although some have local standards which they have made public. Most Local Authorities work to the guidelines, standards and response times laid out in COPLAR for both beaches and streets. There were no examples of separate beach management strategies although in many

Most problematic litter types identified by Local Authorities

\*Not including flytipping



Biggest current challenges identified by Local Authorities





coastal authorities, the Blue Flag Award process was seen as the focal point for addressing a range of issues and is the key driver for ensuring a quality beach environment and a positive draw for visitors. Engagement through volunteer groups (notably KWT, MCS and SAS groups) was considered a critical element of terrestrial and coastal management.

As the focus of all Local Authorities is on street cleansing and meeting statutory requirements, there are few examples of prevention work at a Local Authority level although there are exceptions to this where external funding has been secured such as the North and Mid Wales SAC areas respectively. Integration of services within Local Authorities themselves were most common with housing and countryside departments in those areas which retained housing stock which again reflects the focus on cleansing and removal of fly-tipping, rather than prevention.

Through the Litter Strategy workshops that were carried out in November 2018, some of the biggest local challenges identified by attendees was the difficulty of communicating messages across regions, all operating different systems and approaches to recycling and litter. Although issues around resources and capacity were inevitably identified, the vast majority of challenges to Local Authorities were about overcoming challenges to communication both *within* Local Authorities and *between* Local Authorities.

Efforts to integrate recycling and litter issues will be beneficial to communication efforts and can be used to maximise the effectiveness of key messages about the challenges all Local Authorities are facing around 'recycling on the go', littering and meeting recycling targets. There are currently 4 authorities who separate their waste from street cleansing (Swansea, RCT, Merthyr and Conwy), two of these do this at source and two of these separate at the facility. Those authorities who have been able to provide data on the separation ratio have demonstrated significant results. Merthyr for example, has collected 19 tonnes of plastic and cans for recycling from street cleansing between April 2018 – November 2018. It is interesting to note that the monthly collections and separation ratio do not vary significantly from month to month. These can be viewed in [Appendix 6](#).

Every Local Authority in Wales suffers from the blight of littering and the difficulty of engaging people with 'recycling on the go'. Greater integration between recycling and cleansing internally can provide a powerful tool to create a more cohesive message across Wales. Separation of street / beach cleansing will not only provide authorities with greater recyclates and income but can also provide powerful data to communicate to the public about related litter and recycling issues to influence behaviours both at home and away. Local Authorities could also separate what is found in litter bins on an annual or bi-annual basis to feed into national composite data if it was identified as a useful policy measure.

The development of local or regional litter strategies and action plans will provide a platform for a more preventative and holistic approach to tackling litter and related issues at source. These plans can be used to engage internal and external stakeholders and unify approaches and messaging. To facilitate a joined-up approach, these could be led by a group of inter-departmental actors within the Local Authority. A national strategy, recognising the interrelation between, litter, waste, recycling on-the-go and fly-tipping, could go a long way to creating the consistency and drive needed for collaboration. recycling on-the-go and fly-tipping, could go a long way to creating the consistency and drive needed for collaboration. This research could not extend to an analysis of Port and Harbour management and, as key actors in tackling sea-borne litter, and fishing litter in particular, could warrant further research into best practice and facilitate engagement with Local Authority strategies.



## Monmouthshire Council – Litter Action Plan

Monmouthshire Council have developed a Litter Action Plan in consultation with community groups and local stakeholders in response to an increase in littering demonstrated by LEAMS data. Their ambition is to: Make littering unacceptable behaviour and to seek new and innovative ways to reduce littering and to clear it promptly where it turns up.

The plan has been led by the Waste and Recycling Education and Awareness Officer and is an interesting example due to the holistic approach and emphasis on the impact of litter on wellbeing, drawing specific links to the Wellbeing and Future Generations Act. The Plan encompasses the '[LEQ Approach](#)' taken by Keep Wales Tidy. The plan outlines some concrete actions to be delivered by the council and other stakeholders and cements support for community initiatives as well as outlining aspirational projects for external funding support which were identified through community consultation.

The Plan will be monitored through LEAMS Survey analyses, internal and external data analyses, bin monitoring and community involvement in data collection.

The action plan will sit within a wider Litter Strategy for the area. At the time of writing is yet to be ratified by the full council.

*"It is felt that the county's position as a leader in the area of household waste recycling should be matched by an equally ambitious approach to litter that meets the needs and wishes of the local population and contributes to wellbeing" – Monmouthshire CC*





## Partnerships & Collaboration

As identified by stakeholders in the regional [workshops](#), collaboration and partnership working is often directed by the funding available and is especially reliant on the model and requirements of the respective funder. As previously noted, cross border collaboration is challenging due to the different structures and approaches although there are currently three very good examples of regional collaboration projects in Wales (with litter prevention as an element) although all of these are externally funded partnerships with inevitable end dates.<sup>‡</sup> An exception to this is the Big Dee Day, which has just celebrated its 12<sup>th</sup> year. Coordinated by Flintshire County Council and supported by a number of private sector enterprises along the Dee Estuary, not only has this engaged significant support, it is one of the only examples of collaboration along a spatial pathway and across the Wales - England border.

Every Local Authority cited their heavy reliance on local volunteers and community groups and the value of Keep Wales Tidy coordinators to facilitate joint working. With only one exception however, these partnerships are informal, relying on personal relationships for activity to take place. This was highlighted as a risk in the regional workshops as any loss of key staff can potentially halt community engagement and activity. Increasing recognition and analysis of the cost-benefits that these partnerships bring may help to bring about more formalised, supportive systems of mutual benefit which can help to mitigate funding volatility and dependence on single staff members. This Local Authority – Community partnership is perhaps the most crucial relationship in the fight against litter.

Many areas are increasingly engaging with Town and Community Councils on the issue although this relationship is predominantly informal with the exception of some Town Councils who have taken on street cleansing contracts. Although there is certainly a greater role for Town, Community and Parish Councils in understanding and communicating litter prevention, this may not provide a solution for all areas as capacity, resources and knowledge varies significantly between members and between councils. Their involvement in developing local action plans however, could be transformative for local areas.

A few Local Authorities have partnerships with the probation service to undertake cleansing work, particularly for fly-tipping although this is not as widespread as it has been in the past. With a few exceptions, it was notable that many areas have no formal partnerships on littering issues with Housing Associations, National Park Authorities, Natural Resources Wales, Welsh Water, HEI's or the private sector.

Integration of services internally was not common although there were some exceptions to this, most notably where councils had retained housing stock. As many of the identified challenges to tackling litter at source were related to communication, joined up working within Local Authorities would considerably enhance the resources and the reach of public communication. To achieve this, more needs to be done through council plans to get litter and recycling issues understood in other sectors such as economic development, regeneration, housing, tourism, education and even poverty prevention.

Joined up efforts across departments has already been facilitated in some authorities by the procurement reviews that many Local Authorities have undertaken on single-use plastic. Interestingly, joint work on internal plastic reduction in Conwy Council came about as a result of their own decision to change to 4 weekly waste collections at kerbside. Joining up waste and cleansing efforts in particular, would also capitalise on the educational resource that many Local Authorities have for the related issues of recycling and waste awareness. Sharing access to educational centres and resources would allow for greater reach.

---

<sup>‡</sup> I.e.: The two regional SAC's and the Living Levels Partnership, although the latter is mainly focused on fly-tipping.

## Flintshire Council – Big Dee Day

The Big Dee day was established in 2007 and is now in its 12<sup>th</sup> year. Led by Flintshire Council, other official partners include Cheshire West and Chester Council, Denbighshire County Council, Gwynedd County Council, Wrexham County Council, Shropshire County Council, Keep Wales Tidy, Natural Resources Wales and Tesco.

The Big Dee Day is one of the few examples of regional collaboration along a spatial pathway and of successful cross border work with England. Activities cover around 40 km stretch of coast estuary and riverbank as well as clean ups on Moel Famau and Snowdon and in a range of country parks, tributary rivers, small woodland and urban sites. Although small pots of funding have been secured over the years, the main event is based on manpower and the success over the years has persuaded neighbouring councils to play a greater role.

Due to their location along the estuary, the project has attracted significant engagement from the private sector (ENI, Haven, Warwick Chemicals, Kingspan, Airbus, Tata, Kimberly Clarke, Toyota, McDonalds to name but a few) and community groups, schools and charities as well. Although it started as a clean-up activity, many have taken up wider environmental projects as a result.

*“It started as a litter pick in Talacre and grew massively over the years. It has transformed Flintshire’s coast with huge clean ups and improvement events. In past years there were bin lorries on standby going around the county picking up huge amounts of rubbish. Over time, the rubbish has been cleared and there isn’t the same need for that, so we developed into other environmental improvements. Organisations can make a big difference to the natural environment without having to spend money. People working together for the same common goal really can change things in dramatic ways.” – Flintshire Council*



Image: Swimming turtle



Although it is recognised that this would likely need to be implemented at a Welsh Government level and would require significant input from Local Authorities, the barriers to regional collaboration would be significantly reduced if there was a standardisation of systems and approaches. This could include uniform systems for enforcement, fly-tipping, litter messaging, recycling and all related back office systems.

Collaboration based on spatial pathways could be a particularly effective future model. The Wales Coastal Path is a good example of physical linkage across different areas and provides a common interest for all areas, although rivers, roads and even the rail network could also provide excellent platforms for joint working across borders and across sectors. These pathways can provide common interests which a single project area may not provide, bringing together community groups, businesses and the public sector along spatial lines, rather than arbitrary or 'forced' boundaries. This could also support the revitalisation of key partnerships such as Local Authority collaboration with NRW particularly on the issue of fly-tipping and delivery of Area Statements, where a loss of key staff and restructuring has led to a currently fragile relationship. Other 'anchored' organisations such as the Trunk Road Agencies, the Water Industry and Universities should also be engaged along these lines. This could be further strengthened if collaboration between departments was strengthened *internally* and litter was not just a part of environmental roles but considered more widely by other sections such as; tourism, local economic development, regeneration, housing, planning and education. This could also open up partnership opportunities externally and may help to bring about more formalised, supportive systems of mutual benefit which can also help to mitigate resource volatility.

Funding models within the public sector should be aware of the structural and non-structural barriers to collaboration and should be alert to the unintended consequences or additional burdens that certain criteria or models may inflict. There is a need for a fundamental shift in our consumer behaviours and infrastructure if we are to address waste issues effectively and this will take time. There is a need for funders in this area to recognise the long-term investment required for sustainable change and should be open to funding project extensions or replicated projects if they have demonstrated success. Thus, requirements for innovation should not be included in future funding criteria unless necessary if we are to maintain best practice and for successful projects to fully reach their impact. Fishing litter projects in West Wales, for example, have had to be halted for this very reason. It is fundamental to service delivery in Wales that collaboration and partnership working becomes the norm, rather than something which has an inevitable 'end point' which is dictated by specific funding requirements.

## Communication & Education

The vast majority of challenges identified in the strategy workshops related to communication. Although the resources required for communication cannot be ignored, it is an issue which generally requires less resources and time than some of the other challenges faced such as infrastructure or revenue, especially with the prevalence of social media. However, funding for specific communications roles is not widespread.

Many Local Authorities do not currently have a campaign or specific message which is used to tackle litter, with many citing no resources and a reliance on the third sector. The exception is where funded partnerships exist, normally as part of wider project delivery or where local authorities have adopted grass-roots campaigns such as Cardiff and Monmouthshire who are pro-actively supporting and promoting community developed messaging for the local area. Internal collaboration could really maximise the effectiveness of campaigns and there is a huge potential for cross-border collaboration on communication, especially for social media engagement.

Tourism in particular has a vital role to play. Many Local Authorities were positive about the development and impact of the Wales Coast Path. This was particularly true for Flintshire; "*Up to that*

*point the authority had never really looked to the coast, and never considered itself a coastal community. The Coast path development was the stimulus for engaging both political and community leadership."*

Capacity for educational work and messaging varies although it is extremely uncommon for Local Authorities to engage directly with schools. Many areas however, did note that there is a relationship with the [Eco-Schools](#) programme, run through Keep Wales Tidy. Instead, Local Authority educational resources are devoted entirely to stimulating recycling participation in the home by direct contact with residents or presence at public events and action days. Monmouthshire and RCT are the only authorities to have dedicated education centres which are attended by schools in the local area. There may be the opportunity to open up these centres to neighbouring authorities to engage more directly with pupils. It should also be noted that an element of education is part of any Blue Flag Award process and many coastal authorities meet this criteria through direct support for schools engaging with beach clean ups.

Only three authorities have no dedicated education resources at all within environment or neighbourhood services, although Education officers are often tasked with waste awareness, sometimes this incorporates dual roles, most usually with enforcement. In some authorities, waste is entirely separate to street cleansing although litter and waste issues, including fly-tipping, are not separate in the public mind. An integration of these roles into litter awareness and prevention may go a long way to start to address the issue of recycling on-the-go.

At the workshops, the introduction of a 'Tourist Tax' was discussed and positively considered. Tourist Taxes' are common in many countries, particularly in Europe and in almost all cases, the costs of cleansing and the impact of litter have been the main drivers for the tax introduction. Elsewhere, the taxes have been passed through national legislation, but it is regulated and spent in local municipalities and fees can vary from region to region. There is the potential in Wales for such a scheme to act as an effective communication tool and raise a small amount of revenue. The introduction of such a tax in Wales would represent a first for the UK and the messaging and transparency of the rationale would be critical to mitigate negative perceptions, both with the public and the tourist industry. It is important that this is not seen as a revenue generator but as a way of covering the costs in managing the impact of tourism; *'The primary objective of environmental taxes...is not to raise public revenues but to tackle environmental challenges...and can change behaviour towards a resource-efficient circular economy.'*<sup>18</sup>

There is a significant opportunity to join up communication on anti-littering messages with the tourism sector. Visit Wales and Welsh Government could undertake a large-scale analysis which captures the economic, social and environmental impacts of litter on tourism and tourist destinations in order to cement partnerships and integration between the environmental and tourist sectors.

To maximise the effectiveness and reach of anti-litter or recycling on-the-go messages, neighbouring Local Authorities could collaborate on communication messages with little or no additional resource, especially for social media campaigns. Few Local Authorities currently have their own (specific) litter campaigns and joining up communications across Wales, or across regions, would be a cost-effective way for Local Authorities to maximise public reach. National Park Authorities, spanning different Local Authorities are ideally placed to facilitate Local Authority collaboration, particularly around visitor communication. Although all three of the National Park Authorities in Wales have concerns about the litter generated by visitors to their areas, there is limited capacity to address this directly, with the exception of Snowdonia National Park Authority who have included the issue in their recently launched [Snowdon Partnership Plan](#). The Sustainable Development Fund has been the key driver for addressing this issue, providing support for a huge number of community activities in all three regions. Volunteer groups and tourism businesses could also be well placed to deliver education and awareness messages, particularly on beaches.

Although a standardisation of litter and waste approaches is likely to have the biggest impact in the long term, engaging with transient populations or those in high deprivation will require highly visual and consistent messaging. University campuses and the most popular visitor destinations may benefit from

identifying the number of visitors / students who have English as a Second Language and messaging in a variety of different languages could be considered.

## Infrastructure & Cleansing

Litter cleansing and infrastructure was significantly varied across Wales, although the majority of authorities operated cleansing on a scheduled basis, a few Local Authorities were entirely reactive, with several more concerned that the service would be skeletal if there were increased cuts to budgets. Although resources were cited as the main issue for street management services, this was particularly pronounced in rural authorities who struggled to divert resources to more isolated areas. Street zoning was also inconsistent, despite this being a part of COPLAR since 2007.

Many of the authorities have strict cleansing regimes for designated beaches, particularly in the bathing season which tends to require additional seasonal staff. However, this tends to be supplemented – often quite significantly – by volunteer groups. This is particularly the case for non-designated beaches or those owned, for example, by the National Trust. Although areas endeavoured to meet the standard set out in COPLAR, some areas were only able to achieve this at peak time as they *‘flood the area with resources’* and divert resources away from other areas at peak times or in the visitor season.

In the majority of areas, cleansing budgets were combined with waste budgets and separate figures for street cleansing were not available. Where separate budgets were available, this varied from approximately £1.4 million to £5.7 million although this often excluded the cost for roadside litter, parks management, disposal, fly-tipping, enforcement and other related services. Staff numbers also varied significantly, with a minimum of around 15 to a maximum of around 140 although it should be noted that these figures were often relating to the entire force for ‘Street Care’ services, not just cleansing. Similarly, the equipment, geographical dispersal and sharing of resources available in each area varied greatly and has also seen a reduction as a result of cuts to budgets.

Another notable difference in approaches was in regard to litter bins and other infrastructure. Numbers of litter bins ranged from 120 to 3600 with no correlation between population or size of the authority area. Areas of greatest bin density were often a result of a historic policy to grant bins whenever they were requested (usually by Town Councillors) although this policy is rapidly changing and almost every authority were in the process of undergoing a bin ‘review’ or had this as a future ambition. Some areas, as part of their review process have removed bins from certain locations, such as laybys, due to the consistent and high level of misuse. One of the current issues across all authorities is household or business waste being disposed of in or around public waste bins. Although only the Vale of Glamorgan and Anglesey had formal ‘bin policies’, the majority of authorities generally refuse requests for new bin installation but will consider moving existing bins to a new location. Although this contributes to

keeping bin provision 'at scale', it doesn't necessarily serve to make them more manageable. This is partly due to the need for staff resources to empty and maintain them, but also an increasing recognition that bins in themselves do not prevent litter. As most bin requests come from Town Councils, there is a need to communicate this with local members and to bring them into the strategic litter prevention process. Of the authorities that had 2-minute beach clean boards, they had been very positively received by the public. More recently, 2-minute Street Clean boards have been introduced in some towns and are proving popular.

Every Local Authority in Wales has struggled with contamination of street recycling bins in their area and many have undertaken trials to this effect. A small number of areas install these bins as standard, despite the issues of contamination as they feel it is the 'right thing to do' although the majority only maintain a very small number of them in town centres. Behaviour change in this area is complex although one of the issues may be that current bin design does not align with household recycling infrastructure. Neath Port Talbot are embarking on a trial with a specially made bin design which does this.

Guidance and standards for litter bin policies, design and installation could be developed and shared to create greater uniformity. Recycling on-the-go could be made more effective through a national colour-coded design which would provide a cohesive all-Wales message.

## Enforcement

Enforcement provision in Wales varies significantly in scale, deployment, resources and management. Many authorities had their enforcement under live review at the time of interviewing as a result of the termination of agreements with external contractors.

Enforcement on beaches was more often targeted at Public Space Protection Orders for dog control (formerly Dog Control Orders) in the bathing season rather than littering although the number of Fixed Penalty Notices issued for both offences tend to be very low. This is partially due to the fact that enforcement for littering on beaches was generally considered a very difficult task due to the nature of how people use beaches and how busy they can get. This is easier for dog control regulations which are in place on designated beaches between May-September although it is still a matter of having enforcement witnesses at the 'right time, right place'. The Vale of Glamorgan Council is an example of where enforcement is carried out for both offences on beaches in visitor season. They reported that notices are issued on average 3 times a week, sometimes daily although this is not the norm.

When asked through a Keep Wales Tidy survey in 2015/16, many Local Authorities indicated that park rangers, other authority staff, PCSO's and police constables could issue FPN's but rarely did so in practice. Monmouthshire have developed effective partnerships to this end and Gwynedd Council has plans to train and give powers to seasonal 'beach wardens' for environmental enforcement, these roles are employed by their environment directorate and are akin to lifeguards. In 2018/19 they will be equipped with personal cameras to try and enhance enforcement and reduce instances of anti-social behaviour.

Environmental enforcement is extremely difficult due to the need to be in the 'right place at the right time'. A number of Local Authorities identified this as one of their most difficult challenges. Resources are limited for staff deployment and the necessary back office administration. More direct enforcement such as waste, environmental health and fly-tipping are often prioritised over patrolling for offenders. There is no correlation between cleanliness data and the number of FPN's issued for littering in Wales although that is not to say that it does not have a role to play. However, it is important to note that a high number of FPN's does not necessarily mean cleaner streets<sup>§</sup> and should not be used as a benchmark for success or as a way of raising revenue. If any intervention is to be considered as

---

<sup>§</sup> LEAMS / FPN correlation





*Image: Council worker picking up litter on beach*

successful, consistent enforcement should actually demonstrate a decrease of penalties issued over time.

Private contracts for enforcement staff to issue FPN's for dog fouling and/ or littering has attracted media attention and controversy in recent years and is very much a 'live' discussion for many Local Authorities. Enforcement staff have reported advantages and disadvantages of both private and public

enforcement and this issue should be considered carefully by Local Authorities and in close consultation with relevant frontline staff who have the experience, knowledge and skills required to deliver this effectively on the ground. Any enforcement decision or strategy should also consider the potential for unintended consequences and the inadvertent creation of structural barriers which may dis-incentivise prevention. For example: outsourcing of contracts meant that some contractors "*have no incentive to decrease demand or innovate*".<sup>9</sup> Similarly, given the delineation of officer roles very much linked to particular sorts of activities, for example 'enforcement officers' and 'education officers'. There is often not an incentive for these officers to focus on more holistic preventative strategies which are outside their specified roles or outputs.<sup>10</sup>

Of those authorities who have enforcement capacity (not just for littering issues), three Local Authorities operate private contractors, thirteen have in-house enforcement capacity and four have a combination of the two.

Due to all Local Authorities operating different approaches and different internal management systems to enforcement, cross-border collaboration on this issue is complex. There is further variation in the levels of FPN charges, the way that Magistrates operate, and the charges applied at court as well as processes for appeal and payment options.

Other enforcement and regulatory services could be considered in the fight against litter. Waste management is not included in new housing applications and it was felt that improved planning in this area could have a significant impact. Although new national guidance may be required, consideration of waste issues could apply to all development applications as well as events licences (e.g. Marathons, Festivals, the Three Peaks Challenge), permits and change of use. This could extend to businesses, for example, the requirement of all pubs and restaurants to provide X number of smoking bins relative to capacity. A Planning Liaison Officer in every waste team could support internal communications and ensure that applications are considered appropriately.

If enforcement is going to be a part of litter prevention going forward, there needs to be a rationalisation of standards and approaches which includes recording and back office systems to allow for regional collaboration of messaging and to create the opportunity for resources and completed prosecutions to be maximised. An ideal overhaul would also include training for magistrates on environmental crime and the introduction of consistency in court processes.

## Observations

### Welsh Government

At the time of writing, consideration of new **EPR legislation (for packaging) and mechanisms** such as a nation-wide **Deposit Return Scheme** are imminent with a joint Wales- England consultation process currently underway. This is a timely and welcome process and could have the potential to transform this agenda by realigning responsibilities with producers and manufacturers rather than the taxpayer and Local Authorities. A robust EPR system could provide much needed funds and go some way to catalysing the cultural change needed to achieve improvements to current waste consumption. Due to the challenges associated with the 'Plastic Free' strapline, effective communication on whatever is introduced will be critical. This must include a robust labelling system so that consumers can easily identify what is suitable and what is not suitable for recycling. Biodegradable (and compostable) materials are currently lacking in accepted definition and regulation and this needs to be introduced to industry as soon as possible to avoid any unintended consequences of well-intentioned efforts to move to plastic alternatives which may create problems for future generations. The key message for any government however, must be one of prevention.

This new legislation may also support the integration of recycling and litter issues at a national level. Whilst a **national prevention strategy**, recognising the interrelation between, litter, waste, recycling on the go and fly-tipping, could also create the consistency needed for collaboration on the ground by providing the evidence needed for Local Authority to allocate resources accordingly and to aid in the development of shared systems and shared solutions Any strategy to deal with litter or waste issues must be aligned with the principles embedded in the Wellbeing and Future Generations Act and provide opportunities for increased partnership working with a primary focus on prevention.

More imminently Welsh Government could give consideration to the means of encouraging Local Authorities to implement **uniform systems for enforcement and for fly-tipping data** respectively. Both of these have such significant variations, from recording, to processing, to magistrates that regional collaboration on this is impossible and makes data sharing on offenders and public communication a complex task. Without direction at a national level, (for example, a requirement of funding allocation) it is unlikely that Local Authorities will have the capacity to coordinate and implement these systems alone. If enforcement is to be an effective tool in the fight against litter in Wales, it will be critical to rationalise the current disparate processes. Further consideration could be given by all Local Authorities as to how to **maximise the effectiveness of environmental enforcement** with more innovative practices and to **explore best practice** in enforcement from elsewhere and make efforts to duplicate this wherever possible. There is a gap in our understanding as to how effective enforcement actually is in preventing environmental crime and further study into the 'psychology of enforcement' would be beneficial.

To facilitate data collection on litter, consideration should be given to **National Litter Database** for litter collected by community groups and through Local Authority reporting apps. This could be similar to the DEFRA '[Dashboard](#)' but would differ in the primary aspect that it could have the ability to be used regularly by volunteer groups to establish more comprehensive and 'real-time' data and would be designed to be more useful for Local Authority rather than a national snapshot of irregular or infrequent activities. It would be critical to the robustness of the data that the regularity and consistency of surveys and input could be maintained over the long term, the more data, the more useful this this would be. This would require more exploration by stakeholders but is felt that this could be an effective tool to

engage and inform public audiences. Care should be taken when using broad perception data as a measure of success or engagement as this can often have misleading results.

Although not without complications, there was a general agreement in workshop discussions that a **standardised system for recycling** which was uniform across Wales would significantly benefit participation, communication and collaboration. With clear direction from Welsh Government, Local Authorities should ensure that there is no disparity in what is and is not accepted for recycling across Wales. This would benefit communication, collaboration, public engagement and potentially recycling participation. Uniformity of street recycling facilities could be beneficial to tackling the persistent issue of recycling on-the-go by providing a cohesive all- Wales message although, again, is unlikely to happen organically. **National guidelines on litter infrastructure** could be developed as part of this and include guidelines on bin installation, location, design and other issues which Local Authorities are struggling to tackle cohesively. Some elements of this exist already in previous work by Eunomia (bin installation and management policy template) and by Keep Wales Tidy (bin design) but this could be pulled together into one resource and updated to include the work of some of the housing associations in Wales who are undertaking pilots for community bin design for flats and supported housing.

Given that the vast majority of activity in this area is being led by groups of volunteers and community organisations, many of which are reliant on funding, it is vital that this investment continues to support the overall goal of tackling our marine litter crises and that funders recognise the need for consistency of approach and long-term engagement. **Funding models** within the public sector should be aware of the structural and non- structural barriers to collaboration and should be alert to the unintended consequences or additional burdens that certain criteria or models may inflict. Many projects have been lost due to the requirement for innovation, including Wales' only Local Authority-led Fishing Litter project. It is fundamental to service delivery in Wales that collaboration and partnership working becomes the norm. Short term funding and certain restrictive funding requirements have created a 'short term culture' which does not allow for best practice or partnerships to flourish.

For all sectors, there is an opportunity for public **funding requirements and even events licencing** (for example, sporting events and food festivals) to include essential criteria for plastic reduction and sustainable waste management which would send a strong message and make Welsh Government a visible leader on this issue on the world stage. This should be a consideration for all premises licensing and a consideration of all PSB's in Wales.

A future ambition of Welsh Government could also be the introduction of a **Tourist Tax**, not as a way of raising revenue but as a means of communication and behaviour change at a local level. Practice in other countries should be explored to assess the local impacts on local environment quality and whether this could be replicated here.

## Local Authority

Despite significant budget cuts and limited resources, it should be noted that each Local Authority demonstrated some element of best practice in regard to how they conduct operations and manage litter in their area although collaboration between authorities was limited and opportunities to share best practice were infrequent.\*\* Ideally, national, regional and thematic networks need to be established which would include relevant Welsh Government and Local Authority officials and other stakeholders within the public and private spheres. The principles established in the Wellbeing and Future Generations (Wales) Act requires Local Authorities to consider long term outcomes, prevention, collaboration and engagement although the benefits of working in this way are still in the process of being realised.

---

\*\* The LEQ Forum run by Keep Wales Tidy is one of the only opportunities to do this and is only run once per year.

It was notable that so many of the challenges identified as part of the workshops related to communication both within and between Local Authorities, rather than issues around resources and infrastructure. Although communication in itself, particularly externally, cannot happen without some resource and coordination, a number of actions could be taken within current capacity by creating, revising or integrating internal structures and by establishing regional or national networks to facilitate a more strategic approach to litter prevention. As such, the **development of local (or regional) litter strategies and action plans** will provide a platform for a more preventative and holistic approach to tackling litter and related issues at source. These plans can be used to engage internal and external stakeholders and unify approaches and messaging. To facilitate a joined-up approach, these could be led by a group of inter-departmental actors within the Local Authority and could support engagement with other ‘anchored’ institutions such as NRW, Police, Trunk Road Agencies, the Water Industry and Universities as well as strengthening and formalising support for community actors. **National Park Authorities** could have a much more significant role to play in bringing together the common interests of environment and tourism across regional boundaries.

Similarly, there is a significant opportunity to **align litter prevention work along spatial pathways** (rivers, roads, rail network or footpath networks) and should be piloted as a future collaborative model and a way of engaging with a diverse range of external stakeholders to tackle persistent issues. For example, past [research](#) has identified a number of opportunities for partnership working on the issue of roadside litter. Although these may require securing additional resources to coordinate, funding would be much more effective for regional interventions.

There are some examples of how internal collaboration has been effective as many Local Authorities have established multi-departmental groups to progress their **procurement** review across their estates. Those areas which have been particularly quick to respond to this issue should be applauded for their proactive and inter-departmental approach to plastic reduction and should be encouraged to share their learning with others. Although capturing the amount of single-use plastic which has been averted would be complex, it is likely to have already had a significant impact.

Some immediate action that Local Authorities could take include **implementing COPLAR zones** within the authority and **mapping litter hotspots onto GIS** which would provide an immediately practical way for Local Authorities to identify hotspots and direct resources accordingly.

Every Local Authority will have had experience of drug related litter and although exact numbers of instances of collected syringe accumulations are unknown, it is an issue that every regional Keep Wales Tidy community officer has come across when working with community groups on litter picking events, with half of them saying that it is a considerable problem in their area. Another immediate action could be to develop systems for **sharing data on type, location and scale of accumulations with drug and alcohol charities, police and the Welsh Government Substance Misuse Team**, so that support and the provision of needle services could be directed accordingly.

**Separation of street / beach cleansing practices**, currently only carried out in three areas, could also be replicated across all Local Authorities as a way of providing authorities with greater recycles and income but can also provide powerful data to communicate to the public about related litter and recycling issues to influence behaviours at home and out and about. Local Authorities could also **separate what is found in litter bins on an annual or bi-annual basis to feed into national composite data**. Every Local Authority in Wales suffers from the blight of littering and the difficulty of engaging people with ‘recycling on the go’. A more strategic approach by Local Authority could begin with a review by each authority to consider how **greater integration between recycling and cleansing** operations could be achieved. For example, by adopting Eunomia’s approach to street cleansing based on need and impact rather than routine. There is a need to communicate the benefits of an integrated approach to Local Authority decision makers and to demonstrate best practice from elsewhere that shows the effectiveness of different approaches in a time of reduced resources. There may be



opportunities for maximising resources, combining strategies and delivering education and engagement to demonstrate a more cohesive message.

Some guidelines for implementing litter messaging has been developed by Keep Wales Tidy although there is currently no capacity within Local Authorities to run litter awareness campaigns with very few exceptions. Despite different approaches and priorities, joining up these services could allow for the development of shared messages which neighbouring Local Authorities, could **collaborate on for social media campaigns**, with little to no additional resource. Given the current 'Blue Planet II momentum' there is a good opportunity to engage the public on 'Source to Sea' messages, even in inland areas.

Some Local Authorities are already using businesses and volunteer groups to great effect to maximise their education and communication impact. As every Local Authority has exceptionally good working relationships with many community groups undertaking litter activities, there is the scope to replicate these examples across Wales. It should be noted however that volunteer coordination and support must be supported by adequate staff and resources. If this is lacking, there is the risk of alienating current activity and engagement.

There is certainly a role for **Town and Community Councils** in litter prevention and awareness, with many taking up greater roles for cleansing on behalf of Local Authorities. However, as Town councils vary so considerably in terms of knowledge, capacity and willingness to engage, a more strategic approach, either regionally or nationally, is likely to have the most impact. One Voice Wales and their England equivalent (National Association for Local Councils) could develop a series of seminars in Wales to share best practice and to reinvigorate and expand current networks.

Another opportunity for knowledge sharing and best practice could be through the collation and dissemination of environmental health research and **implications of implementing 'Refill' at scale** as this is often cited as a barrier for Town Council or Local Authority engagement with the Wales Refill Scheme.

## Other Sectors

The reliance of Local Authority on the third sector to undertake cleansing, volunteer coordination and communication on litter issues should be fully supported and fully recognised. It is crucial that the third sector partnerships recognise this role and strengthen Local Authority partnerships in order to more effectively meet the needs of the local area and to communicate the work of volunteers through local teams which are not confined to environment or waste departments but to other roles too such as tourism and local regeneration. More specifically, the **role of the third sector in communicating the plastic reduction message is critical** to continuing the public momentum and engagement. Increased efforts to explain the complexities of the 'Plastic Free' message may be required to increase public understanding. Many supermarkets and retailers have introduced plastic reduction policies although there is more that could be done by the sector. Morrison's for example, allows customers to bring in their own containers when buying fresh produce, meat or fish. The background to the introduction of this policy would have been backed up by **research on environmental health regulations and implications** and the sharing of this research with other retailers may facilitate replication of good practice across the sector.

There were opportunities for further research which have been identified as lacking in evidence or requiring more of a consolidated approach;

Firstly, a significant opportunity to join up communication on anti-littering messages with the tourism sector has been identified and although there are various local partnerships, this link could be strengthened. Visit Wales and Welsh Government could undertake a large-scale analysis which captures the **economic, social and environmental impacts of litter on tourism and tourist destinations** in order

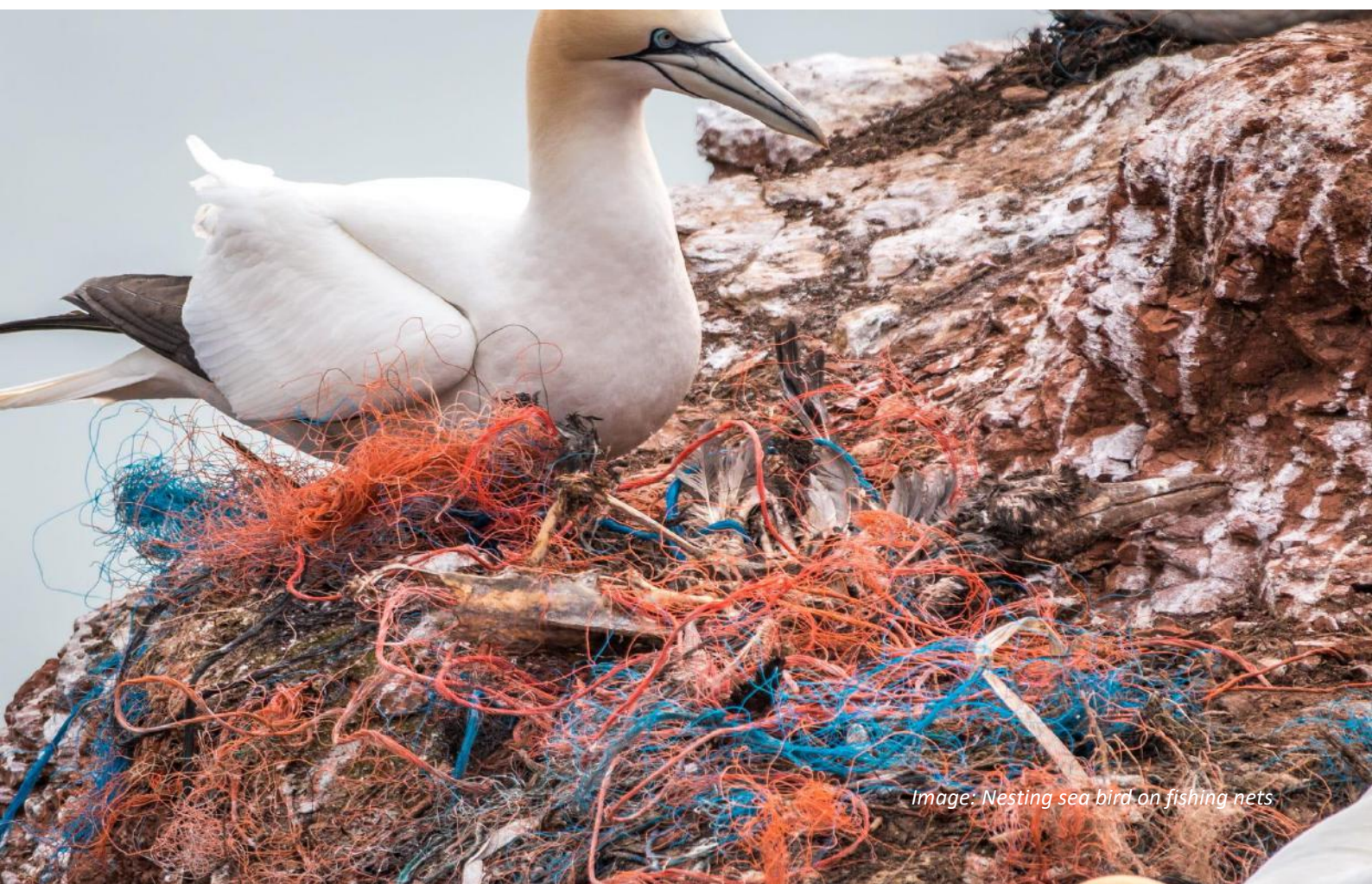
to cement partnerships and integration between the environmental and tourist sectors. There is limited research in this area from across the world and findings and methodologies are varied.

A further area of research which was not possible to explore in any detail as part of this project was an **analysis of the practices and management of Port and Harbour Authorities in Wales.**

Options for tackling littering from vehicles needs to be considered further and more trials are needed to explore how behaviour change messaging can be tailored toward 'Traffic Psychology' as it is evident that interventions for pedestrians are not effective for drivers. Similar research needs to be carried out to conclusively draw conclusions on the potential for 'holiday psychology' and whether promoting the responsible behaviour of visitors require a more targeted approach.

Further work needs to be done on how to reduce the amount of packaging and the recyclability of convenience food. Packaging and labelling need to be standardised so that recycling is clear, consistent and accessible to all. It is imperative that Government or other R&D bodies monitor the impact and creation of new materials put onto the market, particularly those claiming to be 'biodegradable' as there is no national definition for this and the infrastructure for capturing these materials do not exist currently.

With the potential increase in recycle provided through DRS and EPR, research and investment could be undertaken into how Wales could become self-sufficient for plastic in a way which creates jobs and revenue. 'If it's sold in Wales it can be recycled in Wales' could be a realistic ambition for future waste policy.



*Image: Nesting sea bird on fishing nets*

## Appendix 1: Local Authority Interview Questions

### 1. Local Authority internal Structure

### 2. Strategy & Management

- Local Authority Litter Action Plans or Strategies
- Beach Litter Management Action Plan or strategies (Coastal)
- Number of beaches in authority area (Coastal)

### 3. Collaboration

- Partnerships to tackle litter

### 4. Infrastructure & Cleansing

- Separate or combined budgets for litter / street cleansing
- Separate or combined budgets beach cleaning (Coastal)
- Separate weight figures of litter collected from beaches (Coastal)
- Separate waste collected on streets /beaches
- Links with other waste related services (including education and awareness raising)
- Street cleansing Delivery and use of zoning
- Street cleansing resources (vehicles, plant, equipment etc)
- Resource deployment (rounds, routes, shift patterns, frequencies etc.)
- Staffing levels (including seasonal variations)
- Types, number and sizes of containment used (wheeled bins, post mounted, floor mounted)
- Street recycling provision
- Litter bin policy or strategy
- Street Cleansing policy or strategy
- Integration between street cleaning and recycling service

### 5. Communication

- Council motion on plastic reduction or internal plastic reduction plans
- Plastic reduction or prevention in external plans e.g.: Area Statements or River management plans
- Litter priorities (Type, source)
- Litter challenges (Type, Location, demographic)
- Current litter campaigns
- Initiatives to tackle beach / coastal litter (Coastal)
- Marine Litter communication (Coastal)

### 6. Enforcement

- Public / Private enforcement for littering
- Enforcement for littering on beaches or tourist hotspots

## Appendix 2: Local Authority Interview Dates 2018

Blaenau Gwent	06/11/2018	Merthyr Tydfil	04/12/2018
Bridgend	23/11/2018	Monmouthshire	30/11/2018
Caerphilly	07/11/2018	Neath Port Talbot	29/11/2018
Cardiff	04/12/2018	Newport	06/11/2018
Carmarthenshire	29/10/2018	Pembrokeshire	27/11/2018
Ceredigion	30/10/2018	Powys	20/11/2018
Conwy	05/12/2018	Rhondda Cynon Taf	28/11/2018
Denbighshire	09/11/2018	Swansea	20/11/2018
Flintshire	05/11/2018	Torfaen	06/11/2018
Gwynedd	04/12/2018	Vale of Glamorgan	02/11/2018
Isle of Anglesey	27/11/2018	Wrexham	05/12/2018



### Appendix 3: Workshop Summary – Using and identifying data

The aim of this workshop was to get attendees to identify and consider local data is available and how they might use it effectively to provide more efficient services. Attendees were asked to identify how they used existing data, what data was lacking and consider how they might use national and local data more effectively. Some of the broader issues in using data were:

- The challenge of identifying and capturing data as new materials are brought on to the market.
- The overwhelming amount of data available.
- Reliance on perception surveys which can present biased findings as expectations increase as the public become aware of initiatives.
- Political canvassing can distort local data as the cleanest areas can attract most complaints from the public.
- The lack of resources (and available methodology) to be able to capture ALL litter (including marine).

Specific issues were also identified around data collection and particular systems:

- Local Authorities are all using different systems for capturing fly-tipping data which is a current priority for many areas. (FlyMapper, for example, doesn't speak to Waste Data Flow).
- The limitations of the LEAMS surveys not covering verges and green spaces.
- Roadside litter was highlighted by many as a specific issue for which no accurate data exists. This is partly due to the risk of working on roadsides and the various agencies and costs involved in traffic management. This lack of data has an impact on how resources are directed and is often the first to be diverted to other areas, compounding the issue further.

It was suggested at all workshops that there was significant opportunity for establishing something like a national litter database for litter collected 'on the ground' and the ability for community groups to be able to feed into this. Many community groups do collect litter and separation data and could be a useful tool for local and national benchmarking. However, to avoid problems with consistency and the variation between Local Authorities, this would likely require national policy change. This could include a standardisation of the way that litter is reported to principal litter authorities across Wales as many are now using local apps to report incidents. It was suggested that if the public and community groups had a clear understanding of what will happen to records, who is using them and what for, they can capture the most useful information and so long as it is backed up with appropriate action, would facilitate engagement with their local environment and local democratic institutions.

Both LEAMS and Beachwatch surveys have been carried out for a long time and therefore provide good temporal analyses and shifts over time. Standardisation of fly-tipping data was considered an issue however and it was suggested that Welsh Government could adopt one uniform system for; Waste Data flow, fly-tipping capture and internal management systems (including enforcement and sharing details of offenders across Local Authorities). Uniformity of these systems would also provide enough data to allow for evidence-based polluter-pays policies at a national level.

Another significant opportunity for data capture was for Local Authorities to separate recyclable materials from street cleansing (this is currently only carried out by 3 of the 22 authorities). Local Authorities could also separate what is found in litter bins on an annual or bi-annual basis to feed into national composite data.

Collecting Local Authority level data internally on street cleansing activity was also considered within the discussion groups, suggestions included: Recording tonnage per FTE operative, recording the distance travelled by each sweeper to assess efficiency, using smart bins to record when bins are full to rationalise collection/routes, co-ordinating street cleaning teams with waste and recycling collection, using a log in system for operators on the road to record instances of waste, recording seasonal variations along normal litter cleaning routes to assess where bins need to be deployed and using zoning information in each Local Authority. The latter is currently not done by all Local Authorities and there is



an opportunity with the review of COPLAR to insist that all Local Authorities have their zones properly mapped. This would also ensure more accurate LEAMS survey data. Current zone categories could also be reviewed to include additional density areas or special categories such as events or tourist destinations. Similarly, many Local Authorities have GIS capacity (normally within their planning directorate) although few use this to inform litter/ fly-tipping data and street cleansing. Plotting litter pathways and hotspots in an integrated system can generate reports so that Local Authorities can direct their resources more efficiently and make informed decisions about infrastructure (e.g. bins). This level of mapping could also be used to inform regional collaboration.

It was felt that Water companies could also benefit from surveying data and recording of litter types which will help inform the source and the necessary messages needed to target issues of sewage related debris entering our waterways. It was suggested that water companies could also link with other tourism-based agencies such as organised river walks, rangers and kayak / canoe companies to collect data and map hotspots.

Perception surveys to provide a picture of public satisfaction and the mapping of seasonal variation of litter in tourism hotspots was also considered at a local level. Given the difficulties associated with direct perception surveys, it was suggested that capturing information on individual values and beliefs could instead be used more effectively to target behaviour change.

In terms of using data, it was felt that there could be a much more effective communication of this and in particular how it could be used to promote prevention and behaviour change, both locally and nationally. It was also suggested that litter data could combine with an ecosystem service database to identify and communicate the impact of litter on other services, strengthening the social, economic and environmental message.

The sharing of specific data was also noted, particularly in relation to drugs related litter which could be shared with local drugs charities and other relevant agencies such as housing associations and the police.

## Appendix 4: Workshop Summary – Collaboration

The aim of this workshop was to encourage discussion about how to increase collaboration and encourage the consideration of additional partnerships in developing litter initiatives. The term was considered both between Local Authorities and other agencies as well as internally, within local and Welsh Government departments.

Although collaboration was recognised as a positive undertaking which had multiple benefits, it was also flagged as a real challenge, especially for Local Authorities and *between* Local Authorities. One of the main repeated issues in engaging with partners was that many collaborative projects were at the mercy of the respective funding model and subsequent requirements. This was especially the case where funding criteria included a requirement for innovation and did not allow for continuation of a project or activity meaning that best practice, established relationships and often key staff and knowledge were lost and unlikely ever to be restored. This has also led to collaboration being seen as having an inevitable 'end point', rather than the creation of a sustainable, long-term partnership. Managing expectations and differing agendas in partnerships also requires a certain skill set and profile which may not be readily available at current staffing levels and is often lost along with funding.

Similarly, staff and administration time to apply and deliver such projects can also be too onerous, especially for Local Authorities, even though it is widely recognised that anything additional to statutory duties was heavily, if not solely, reliant on external support. These issues appear to have led to a change in what Local Authorities are willing to engage in, as one attendee said; *'Diminished resources and funding leads to diminished responsibility'*.

Collaboration has to meet the needs of both parties' objectives and KPI's often vary significantly between sectors, especially the private and public sector. Most collaborative working (in current practice) relies on personal relationships rather than formalised systems and any loss in key staff can result in delays, or a complete halt of activity. This is an especially pertinent issue when working with community groups who may quickly lose momentum if there is no support at hand as volunteer activity almost always relies on some level of Local Authority engagement, even if their activities are not carried out on public land.

Cross border collaboration between Local Authorities and across catchment areas may present a significant step change in preventing litter at source. This is not currently actively pursued outside of some current funded projects<sup>††</sup> with Wales/England collaboration presenting a specific issue due to differing legislation and priorities. Cross border working between Local Authorities is especially difficult for recycling, waste and litter activity due to the different systems in place. This issue is partly structural in terms of recycling and waste but also relevant to the different approaches and culture of individual authorities. Enforcement activity, for example, varies significantly with some areas operating zero tolerance and others with little enforcement resource at all who choose to focus more on education.<sup>‡‡</sup> Resource allocation and the relative size of Local Authorities is a particular challenge for smaller or more rural areas. National Park Authorities cover a range of Local Authorities and could be utilised more effectively to facilitate cross border cooperation.

The current momentum against single-use plastic and unprecedented number of volunteers across Wales does present opportunities and there is a significant recognition by Local Authorities of their heavy reliance on the voluntary sector for litter picking, prevention and environmental improvements. Although it was also noted by some that it was felt that volunteers needed more support by Local Authorities in terms of equipment and litter collection. It is rare for these partnerships to be formalised though, with many relying on personal relationships of key members of the community and one or two Local Authority staff. Increasing recognition and analysis of the cost-benefits that these partnerships bring may help to bring about more formalised, supportive systems of mutual benefit.

---

<sup>††</sup> Such as the Living Levels Partnership or the North and West Wales SAC areas.

<sup>‡‡</sup> It is worth noting that there is no correlation between the approach taken and cleanliness data.

There is increasing involvement and formal and informal partnerships in this area with Town, Community and Parish Councils and scope for a greater role for these agencies to deliver at a local level. Although this may not provide a solution for all areas as capacity, resources and knowledge varies significantly between councils.

By far the biggest opportunity identified by this group was the opportunity to collaborate on communication messages with little to no additional resource, especially for social media campaigns. Few Local Authorities currently have their own (specific) litter campaigns, with many relying on the messages from the voluntary sector. Joining up communications across Wales, or across regions, would be a cost-effective way for Local Authorities to undertake additional engagement. This could be further strengthened if collaboration between departments was strengthened *internally* and litter was not just a part of environmental roles but considered more widely by other sections such as; tourism, local economic development, regeneration, housing, planning and education. This could also open up partnership opportunities externally and help to join up other initiatives such as alternative economies and tackling poverty initiatives.

Local Authorities all have different structures and there may be an opportunity to review these in line with prevention activities to maximise resources. Although some combine waste and cleansing in the same department, others have complete separation in activities such as parks bins and street bins being managed and emptied by separate departments.

Similarly, there are many opportunities for collaboration based on spatial pathways. The Wales Coastal Path is a good example of physical linkage across different areas and provides a shared interest, although rivers and even the rail network also provide excellent platforms for joint working across borders and across sectors. These pathways can provide common interests which a single area project may not provide, bringing together community groups, businesses and the public sector along spatial lines, rather than arbitrary boundaries.<sup>§§</sup>

Business engagement is also key and Business Improvement Districts (BIDS) provide a good vehicle to do this in the areas where they operate. However, there are a small number of examples of businesses and the Local Authority creating formal agreements to review litter outside of their premises in town centres. Many national businesses also provide resources for litter picking through encouraging volunteer days or delivering team-building exercises, increased engagement with these businesses could support Local Authority plans or local community group endeavours. Service companies as well have their role to play and waste companies may have additional local knowledge to share.

Knowledge sharing also came up repeatedly as a theme for collaboration and the creation of a 'hub' was suggested as a potential resource in identifying and replicating best practice and learning from others past experiences. Research collaboration is already being undertaken in specific sectors, in particular the Water industry; Dŵr Cymru Welsh Water currently collaborating on Refill schemes, Clean Seas Wales Partnership and WMAAG and research with the rest of the UK water industry. However, there may be more scope for collaboration between the voluntary sector (e.g.: Keep Wales Tidy, Marine Conservation Society and Surfers Against Sewage) and the public sector although this was not considered simply as an environmental issue. For example, data sharing between drug and alcohol charities could also provide mutually beneficial partnerships. Sharing knowledge and communicating the learning from academic institutions to other sectors can also present challenges due to the difference in 'language', KPI's, funding and lack of any current 'bridging' network (relevant to this area).

There were specific issues where it was felt current collaborative partnerships needed to be revised and improved. Vehicle litter, enforcement and fly-tipping were all cited as needing greater collaboration with NRW the police and the DVLA. Probation services can also support clean ups and some Local Authorities utilise this to good effect.

---

<sup>§§</sup> The [Big Dee Day](#), led by Flintshire County Council is a good example of 'pathway collaboration' and engagement with the private sector

## Appendix 5: Workshop Summary – Tourism and Transients

The aim of this workshop was to identify the issues and possible solutions when dealing with tourist hotspots and / or transient populations. Transient populations were defined as those who had no permanent status in a local area such as; visitors, students, those in temporary accommodation and travellers.

Visitors to an area and other transient populations pose a particular problem for focusing communication and promoting positive behaviour change as they are less likely to feel ownership over an area and may be less likely to take responsibility for their actions. There may be parallels between ‘traffic psychology’ (the phenomenon whereby people behave differently behind the wheel of a car) and a potential ‘holiday psychology’ which may indicate that behaviours change when away from home. For both waste and litter, tourists and other transients, there appears to be a difference in people’s standards and expectations between those who live in urban and rural populations. More research is needed into these phenomena to draw accurate conclusions although early findings support the hypothesis that behaviours are not transferable across different contexts. That is to say that behaviours adopted in the home may not extend to other areas such as when on holiday or when at work or on-campus and off-campus. Both students and holiday makers may bring a ‘festival mentality’ when out and about, this may be an especially pertinent area for further study given that Wales’ biggest student populations and universities are located on or near to the coast and many of our most popular beaches.

Unlike behaviour change and campaigns aimed at local populations, it is not possible to draw on accurate demographic data for visitors which increases the complexities of targeting messages. International visitors, and international students, also provide additional communication issues if English is a second language. Despite the growing increase in tourism in Wales in recent years, no Local Authorities have yet developed any messages in any other languages other than Welsh and English. This challenge in communication is also extended to any successes or changes implemented locally which may be reported in local press or via a Local Authority but is unlikely to reach holiday makers or other transients. Due to these complexities, litter prevention messaging and campaigns are more likely to be effective for these populations if they are consistently positive and highly visual.

It was suggested that visitors to rural areas from urban areas may have different perceptions and expectations in regard to street cleansing and litter which may contribute to different values and behaviours. Similarly, that people who litter are less likely to be the people who regularly visit area rather than one off holiday makers. There also appears to be a common belief at tourist destinations that car park charging covers the costs of litter picking and cleansing and the ‘take your litter home’ message is met with some reluctance.

Challenges for dealing with student populations and areas of short-term accommodation in particular were largely linked to waste infrastructure issues and the unfamiliar systems which vary from place to place all over the UK and beyond.

Many Local Authorities believe that some policies are negating improvement as changes are happening too quickly and leaving the public behind, leading to more fly-tipping of household waste and a sharp increase in people using public bins to dispose of domestic waste.<sup>\*\*\*</sup> Tenants in temporary accommodation tend to have additional social and economic issues and are less likely than average to engage in recycling participation. High turnover in these areas poses an additional challenge for education and waste awareness officers. Enforcement is also considered ineffective to pursue in these communities as there is often no address available to chase up penalties. Enforcement faces difficulties with visitor populations for this same reason.

Waste management is not included in new housing applications and it was felt that this could have a significant impact. Although new national guidance may be required, consideration of waste issues

---

<sup>\*\*\*</sup> This has been consistently reported by all authorities across Wales in recent years



could apply to all development applications as well as events licences (e.g. Marathons, 3 Peaks Challenge etc), permits and change of use. This could support a wider shift in responsibilities and costs and have a positive impact on local infrastructure. There is also the opportunity for national policy to strengthen the requirement for landlords (or acting estate agents) to ensure appropriate waste disposal in situ and provision of more adequate information to new tenants. However, a consistent approach to recycling across the board would be significantly more likely to enhance engagement and participation as it will allow for a standardisation of messaging.

At a Welsh Government level, serious consideration should be given to a Tourist Tax which would raise significant revenue to address the impact of tourism on local populations.

The rise in 'green tourism' and the recent 'plastic free' momentum provides an opportunity for businesses to use their recycling and plastic reduction initiatives as a 'Unique Selling Point' and can be part of the marketing and information provided by a diverse range of tourism businesses. It was suggested that Visit Wales and Welsh Government could undertake a large-scale analysis which captures the economic, social and environmental impacts of litter on tourism and tourist destinations.<sup>+++</sup> This research could significantly support buy in and investment from the private sector and facilitate joined up policy at local and national scale.

Specific interventions for beaches included the provision of metal bins specifically for BBQ's, a strategic review of bin placement<sup>+++</sup> and 'alcohol-free' zones. 'Beach Greeters' were also suggested as a way of using current staff in local businesses to engage with people about beach litter. In many areas, volunteers are 'on the frontline' of dealing with litter from tourists and there may be scope for extending their role into visitor education. This may be especially effective on beaches as Local Authorities report that there is far more interest from volunteers in keeping beaches clean over any other public space. Supporting beach cleaning events was also seen as a positive use of resources as it provides 'social pressure' to keep the area clean.

It was suggested that there could be a more holistic approach to engaging with students by Universities by linking with local volunteer groups who can engage with students directly on local issues and support them in recycling on and off campus.

Another 'transient' group considered was long distance lorry drivers and there may be an opportunity to engage with the various driver associations which operate in the UK to spread the message.

## Appendix 6: RCT separation from street cleansing in tonnes April – September 2018

	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18
Recycling - Paper	15.28	16.31	14.16	14.4	15.4	13.68
Recycling - Cans	15.28	16.31	14.16	14.4	15.4	13.68
Recycling - Plastic	15.28	16.31	14.16	14.4	15.4	13.68
Recycling - Incinerator Bottom Ash	6.74	7.19	6.25	6.35	6.79	6.04
Energy	25.37	27.07	23.49	23.90	25.55	22.70
Landfill	0.57	0.61	0.53	0.54	0.58	0.51
<b>Total Sent for sorting</b>	<b>78.52</b>	<b>83.8</b>	<b>72.75</b>	<b>73.99</b>	<b>79.12</b>	<b>70.29</b>

<sup>+++</sup> Some international studies exist on this question although results and methodologies vary

<sup>+++</sup> Views varied as to whether litter *next* to bins was considered positive behaviour

## References

---

- <sup>1</sup> BBC, 30.4.18 'Why pristine lakes are filled with toxins', <http://www.bbc.com/future/story/20180426-why-plastics-are-not-just-an-ocean-problem>
- <sup>2</sup> UNEP (2019) <https://www.unenvironment.org/explore-topics/oceans-seas/what-we-do/working-regional-seas/marine-litter>
- <sup>3</sup> UNEP (2017) <http://www.unep.org/newscentre/un-declares-war-ocean-plastic>
- <sup>4</sup> Piper, T, [.PPX] 'The social and economic effects of marine litter'  
[https://www.dorsetforyou.gov.uk/media/pdf/q/i/The\\_Social\\_Economic\\_Effect\\_of\\_Marine\\_Litter\\_-\\_Kimo\\_UK\\_-\\_Tom\\_Piper.pdf](https://www.dorsetforyou.gov.uk/media/pdf/q/i/The_Social_Economic_Effect_of_Marine_Litter_-_Kimo_UK_-_Tom_Piper.pdf)
- <sup>5</sup> UNEP | Greenpeace. (2005). *Plastic Debris in the World's Oceans*. (6.8.15)  
[http://www.unep.org/regionalseas/marinelitter/publications/docs/plastic\\_ocean\\_report.pdf](http://www.unep.org/regionalseas/marinelitter/publications/docs/plastic_ocean_report.pdf) (14.7.15)
- <sup>6</sup> BBC, 30.4.18 'Why pristine lakes are filled with toxins', <http://www.bbc.com/future/story/20180426-why-plastics-are-not-just-an-ocean-problem>
- <sup>7</sup> Transport Research Board et al. (2009) Reducing Litter on Roadsides: A synthesis of Highway Practice, Available at: <https://www.nap.edu/catalog/14250/reducing-litter-on-roadsides> [20/10/16]
- <sup>8</sup> EEA [2016] 'Environmental taxation and EU environmental policies', EEA Report 17/2016, Available : <http://www.eea.europa.eu/publications/environmental-taxation-and-eu-environmental-policies> [21.2.17]
- <sup>9</sup> APSE, 2017, 'Park Life: Street Life: Managing demand in the public realm'  
[http://www.apse.org.uk/apse/assets/File/Documents/Park%20Life%20\(web\).pdf](http://www.apse.org.uk/apse/assets/File/Documents/Park%20Life%20(web).pdf)
- <sup>10</sup> APSE, 2017, *Ibid*