

# Effects of COVID-19 on litter picking activities on the Welsh Coastline and Rivers 2020



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## I. Introduction

The Game and Wildlife Conservation Trust (GWCT) Cymru/Wales were contracted by the ‘**Welsh Partnership of Marine Protected Areas (MPAs)**’ to undertake a study into the ‘**Effects of COVID-19 on litter-picking activities on the Welsh Coastline and Rivers**’. This work has been funded by Welsh Government through the Marine Protected Areas (MPAs) Management Steering Group.

The brief was to look at:

- What effects the COVID-19 pandemic has had on litter-picking activities of relevance to the Welsh coast?
- Has there been an increase or decrease in the levels of litter?
- Would groups / individuals be willing to work with different user groups for the greater good?

### I.1. Marine Protected Areas in Wales

Wales boasts some of the most beautiful and wildlife rich coastline in Britain, this is reflected in the protected areas around our shores.

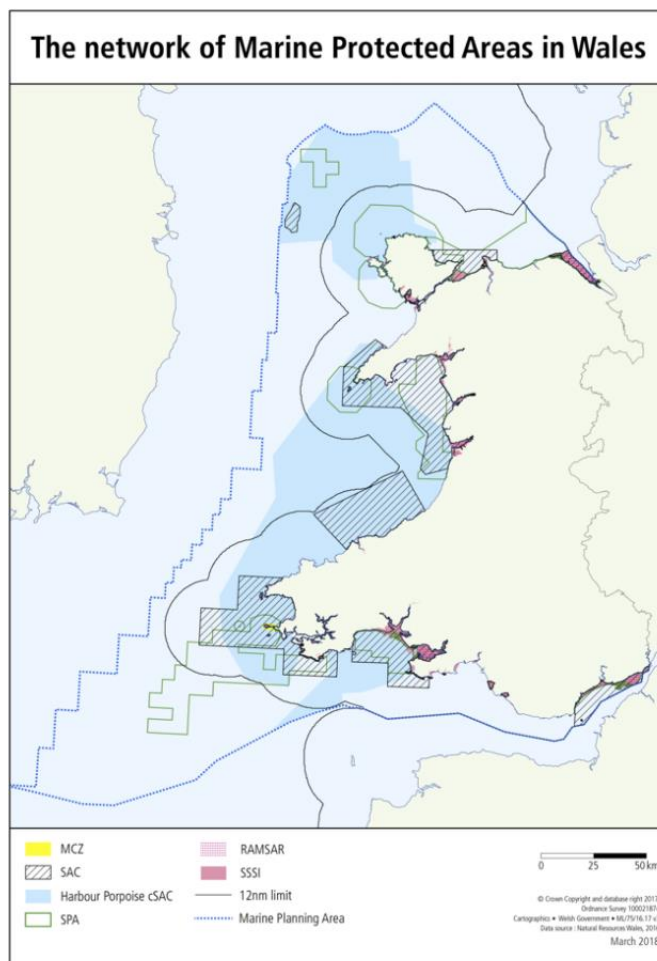


Figure 1 - Map of Special Areas of Conservation (SAC)/Special Protection Areas (SPA) around Wales

“There are 140 sites in Welsh waters made up of:

- 13 Special Protection Areas (SPAs);
- 15 Special Areas of Conservation (SACs);
- 1 Marine Conservation Zone (MCZs);
- 107 Sites of Special Scientific Interest (SSSIs); and
- 4 Ramsar sites.

Some Marine Protected Areas (MPAs), such as coastal SACs and SSSIs, share common boundaries but are included separately, as they are designated under different pieces of legislation and in many cases protect different features of interest. Annex 1 sets out a full list of MPAs in Wales with the features they have been designated to protect. Taken together, these MPAs form a network around Wales. They make a substantial contribution towards an ecologically coherent network of MPAs in the UK and a wider network of sites 10 in the North-East Atlantic established by the OSPAR Commission. An assessment of the network 11 in Wales completed by the JNCC in 2016 concluded sites are well connected with the majority of habitats and species represented and, where possible, replicated to provide resilience in the network. A well designed and managed network of MPAs improves resilience in the marine environment.” (Welsh Government)



## I.2. Plastics in our marine environment:

One of the major problems facing our protected areas, and the coastline of Wales as a whole, is the amount of plastic waste that accumulates on them.

- **80%** of which comes from in land sources such as rivers and drains. (WWF, n.d.)
- It is estimated that **8 million tonnes** of plastic enter our oceans every year (Ocean Unite)
- It is predicted at this rate by 2050 there will be more plastic in the ocean than fish) (Ocean Unite)
- The use of plastic in the world is set to grow dramatically....by 2025 consumption of plastic will be around **400 million tonnes a year!** (Ocean Unite)
- Only an estimated **5% of Plastics are visible** floating on the ocean, **95% are submerged underneath** the surface. (Ocean Unite)



Figure 2 - Typical plastic fishing industry rope



## 2. Results

The following section shows the results from the 'Plastics in our oceans and rivers' survey

The main aim of the survey was to find out how people who undertake litter-picks have been affected by the pandemic and specifically how their efforts have been hampered.

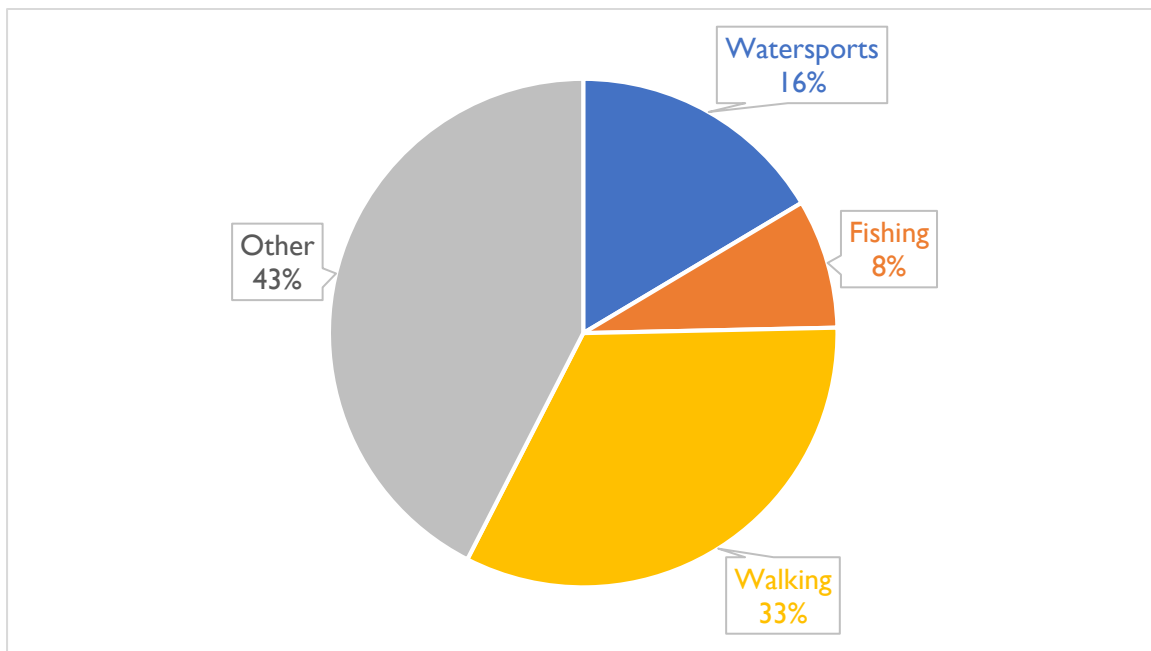
A total of 15 questions were included in the survey with 11 directly relating to litter-picking activities/ plastics in our environment.

All the questions are included in [appendix I](#).

A total of 73 respondents completed the survey. Although, as was stated in the introduction, this is not a representative sample of the Welsh population, it is a significant percentage of volunteers that take part in clean ups along our coast and rivers. Many of the respondents were representing groups / organisations so the numbers they were representing were much higher.

### 2.1. Survey Questions and Results

#### Q. What activity/activities are you involved in on the coastline/rivers of Wales?



'Other' activities included:

<ul style="list-style-type: none"><li>• Cycling</li><li>• Shooting / Wildfowling</li><li>• Beach cleaning / Litter-picking</li><li>• RNLI Crew / Lifeguards</li></ul>	<ul style="list-style-type: none"><li>• Sailing / boating</li><li>• Rowing</li><li>• Conservation work</li><li>• Swimming</li><li>• Fishing</li></ul>
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The percentage of 'other activities' demonstrates how varied people's interests are and how important it is to find that common ground that people can find to work together. Finding that common ground in some cases can prove a challenge as some groups have opposing objectives / beliefs.



## Q - How has COVID-19 effected these activities?

These are a selection of the respondents' answers. They are grouped according to the activities.

(All comments from this question can be found in [appendix 2](#))

### Fishing

*“Reduced fishing visits and reduced presence on the river to limit poaching”*

*“Have not fished at all, caught in confinement elsewhere”*

*“No wildfowling and very little fishing.”*

*“Increase of individuals going fishing as a way of getting exercise which has resulted in more litter being left behind”*

*“Angling activities that cannot be carried out by walking to the venue have been disrupted.”*

### Watersports

*“Restricted the ability to go out sea paddling during lockdown”*

*“Unable to visit the sea but have been dipping in the rivers and lakes”*

*“Guidelines suggest that water sports are restricted to ease pressure on emergency services”.*

*“We're a sea kayaking club & the virus delayed the start of our activities a number of technical courses were cancelled”.*

*“Paddlesport was affected along with many others during the lockdown period. During the first lockdown all activities were banned but the restrictions were eventually relaxed when it was accepted by WG that paddlesports were a legitimate form of exercise as long as it was close to home. Since lockdown there has been an upsurge in interest in people wishing to take part in paddlesports.”*

*“unable to participate in surfing, windsurfing and wing foiling during the initial lock down and the firebreak lockdown and unable to surf really during the Conwy local lockdown due to very few surfable waves in the county”.*

*“The waterway was closed by the port authority so we couldn't use our boat”*



Figure 4 - Surfing on the Llŷn (Picture courtesy of Outwest Images)

## Walking

“during lockdown/firebreak walks were limited only to areas accessible when starting/finishing from home . Outside of lockdown, it’s been possible to drive further to walk on different parts of Gower’

‘Restricted ability to travel to different areas for a walk’

‘As in a rural area my walking has not been affected.’

‘Reduced the duration and frequency of exercise’

‘5-mile limit from home address restricted our activities’

“volunteers have continued to use their exercise time to keep the village litter free. There are still many residents and visitors walking through the lanes and village. Still some litter including rubbish from cars.”

“Walking as normal because I live close to the Wales Coast Path.”

## Other

“As an organisation with beach cleaning stations on Wales' coast we have had to remove them, research beach proof sanitisers for the stations, fundraise to pay for them.” 2minute beach clean.

“We have not been active during this period due to many of our volunteers being in the vulnerable category. Also, until recently we couldn't have had the collected litter disposed of”.

“Under Keep Wales Tidy guidelines and then Carmarthenshire County Council guidelines, I was not permitted to undertake any litter picking activities for many months and servicing of Litter Champions (collection of refuse) did not recommence until October.”

“Public transport has been restricted, meaning I cannot get to these locations, car parks have also been blocked off.

“Unable to invite volunteers to help with habitat work, species surveys and beach litter picks”.

“Unable to organise group beach cleans (Friends of Anglesey Coastal Path: FOACP)”



Figure 5 - Wordle highlighting frequency of words within the replies to the question: How has COVID-19 effected these activities?



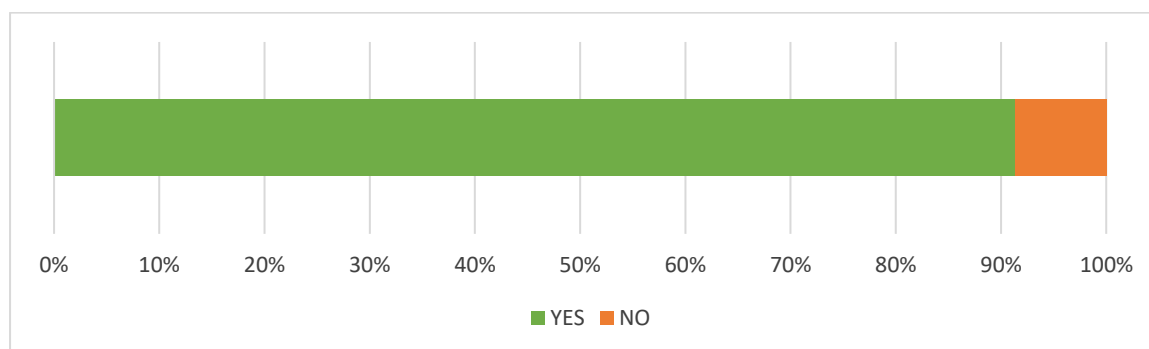
**Q. On a scale of 1-10 how strongly do you feel about plastics/waste in our oceans/ivers?**

With 1 indicating 'Not Concerned' and 10 being 'Extremely Concerned' these were the results from the respondents

1 - NOT CONCERNED	2	3	4	5	6	7	8	9	10- EXTREMELY CONCERNED	WEIGHTED AVERAGE
0%	0%	0%	0%	0%	1.45%	2.90%	7.25%	2.90%	85.51%	9.68

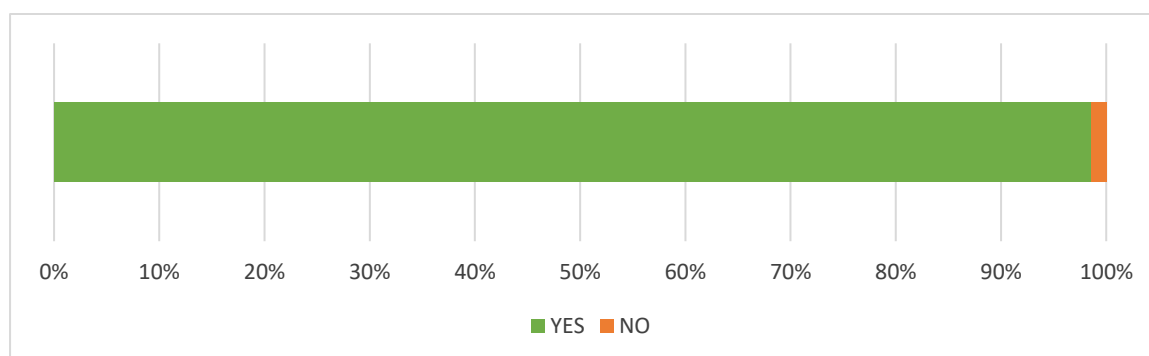
The average on the scale came out as 9.68 with 86% of participants indicating they were 'Extremely Concerned' about plastics/waste in our rivers and oceans. No one responded below 5 on the scale indicating all of the respondents were concerned in some way.

**Q. Do you personally or the group you are involved with collect litter on your stretch of coastline or river?**



91% of participants indicated they were involved personally or as part of a group, undertook litter-picks on the coast or Welsh rivers.

**Q. Would you consider undertaking litter-picks if the right support was in place?**



98.51% would welcome support for undertaking litter-picks.

## Q. Has COVID-19 effected your litter-picking efforts?



Figure 6 - Evidence of PPE on beaches

70% of participants indicated COVID-19 had affected their litter-picking efforts.

**Here are some of the respondent's comments:**

(All comments from this question can be found in [appendix 3](#))

*"Missed our annual litterpick in spring 2020".*

*"As we have not been able to go canoeing, we have not been on the water to pick up plastic etc."*

*"Our club has only been out on the river a few times this year".*

*"Members of Canoe Wales take part in regular litter picks around and within rivers, lakes and coastline. they have not been able to do so this year with many events being cancelled."*

*"Unable to encourage people to use 2-minute beach clean stations".*

*"Didn't do the MCS annual beach watch event that I normally do. Could not be public due to COVID-19. I could have just done it with family and friends but was too busy at the time due to work."*

*"Our group has not been meeting up because of shielding and self-isolating".*

*"Unable to get my own litter picking kit from the council as their premises shut down, groups weren't allowed to meet so no group litter picks were advertised, and existing ones were cancelled."*

*"It hasn't affected my own litter picking but difficult for keep Wales tidy and others to organise group ones".*

*"Unable to arrange group picks as stated. Wouldn't be insured."*

*"Abandoned them due to social distancing measures".*

*"We minimise our contact & restrict Club activities around the distancing guidelines".*

*"I haven't been able to get more than 2 other people involved at a time to pick litter."*

*"We weren't allowed to make unnecessary journeys so couldn't drive to the beach to litter pick".*

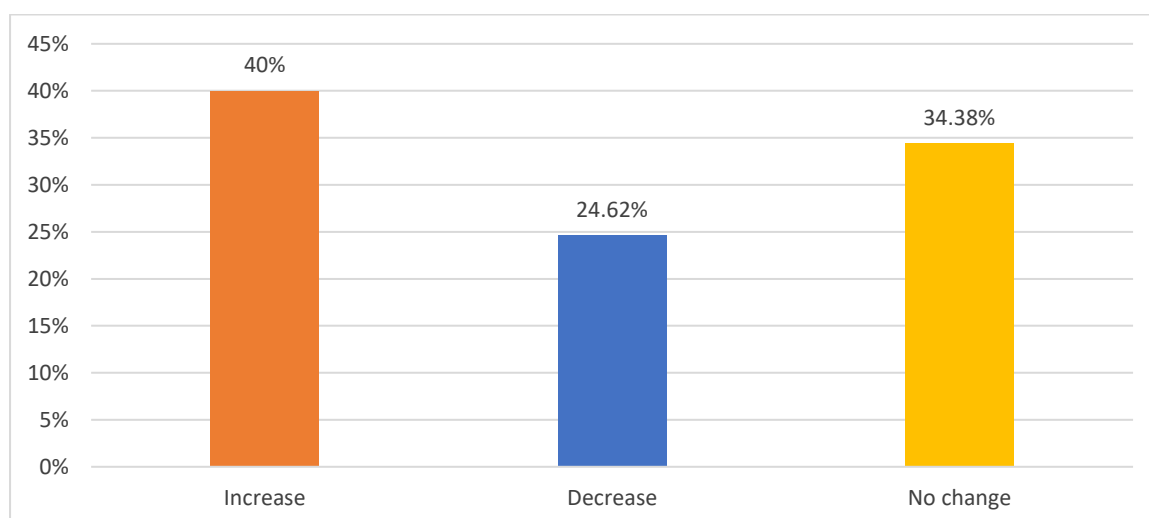
*"Concerned re contact with virus on litter or from contamination from sewage".*

*"I lead a local collaborative campaign that aims to tackle plastic pollution by education and practical solutions. Beach cleans have been difficult this year, as rules have changed a lot and organised events have not allowed at all times."*

*"The five mile travel restriction has prevented the anglers who normally clear up after other people."*

*"Shielding, so afraid I might pick up the virus as there were tremendous amount of litter about"*

## Q. Have you seen an increase or decrease in waste during the Pandemic?



### Comments included with question responses:

(All comments from this question can be found in [appendix 4](#))

#### Increase

*“PPE mainly, but also littering from people using the beach as pubs closed”.*

*“More roadside and visitor/beach user litter. Masks stand out! And also, more disposable bbqs which is a real concern. Otherwise much the same.”*

*“possibly more as increased number of people walking on beaches and discarding litter etc then no organised litterpicks that I am aware of locally.”*

*“Less litter to start with but once the fast-food outlets were open again it was back to normal. Now there are masks everywhere. Also, more fly tipping.”*

*“initially during lockdown no visitors to the beach meant less visitor litter but when restrictions lifted in summer the litter was worse than ever”.*

*“During daily exercise, I have noticed waste and I always do. During certain times of this year however, when lockdown ended, the amount of litter and waste along our coastlines from gatherings was frightening.”*

#### Decrease

*“I clean a beach - litter still coming in from the sea. Although I have noticed a decrease in gun cartridges - less cruise ships with clay shooting of the back”*

*“Beach use during the lockdown has reduced public use of beaches and estuaries where we work. The public are the main source of litter (bottles and wrappers) that we observe. The background fishing litter fragments remain unchanged.”*

*“Less large litter, though plenty of micro plastic still”*

#### No Change

*“Litter here has a seasonal pattern, summer its more visitor based and in the winter its more weather dependant.”*

*“Fewer visitors means less litter, but rubbish washed in by the tide hasn't altered”*



“Still single use bottles floating about everywhere”

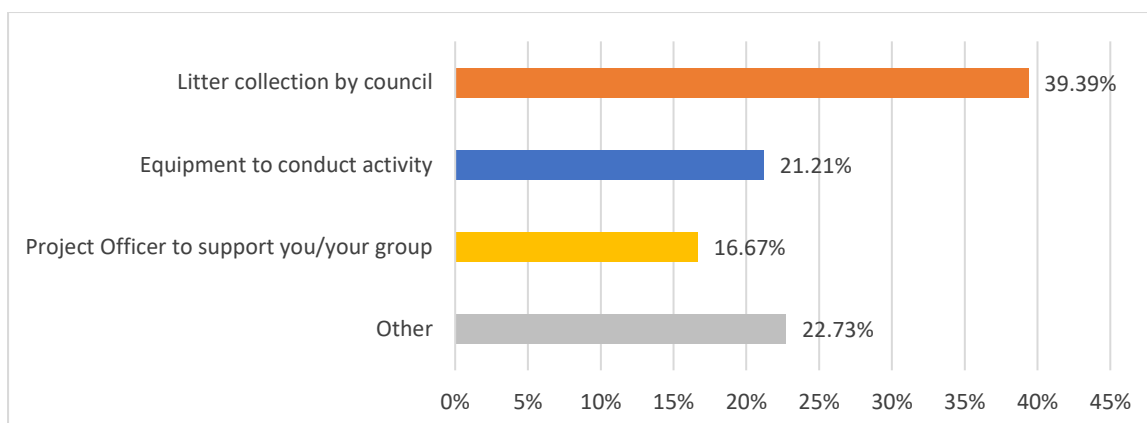
“Too many factors to say if Covid has had an impact.”

‘Less litter from tourists, but just as much from the fishing industry.’



Figure 7 – Fishing waste collected from the beach.

### Q. What would you rate as the most important aspect that would/does help you undertake litter-picks?



#### ‘Other’ comments include:

“coordinated litter pick on Gower and increased education in schools”.

“All of the above. Manufacturers to change packaging”.

“Local group effort, cafes offering incentives to collect such as free coffee”.

“I have support from Keep Wales Tidy in Milford Haven. I work alone or with family from Herbrandston. I also liaise with town council personnel regarding red rubbish bag disposal.”

“contact with others via Facebook to share stories and ideas and keep motivation up”.

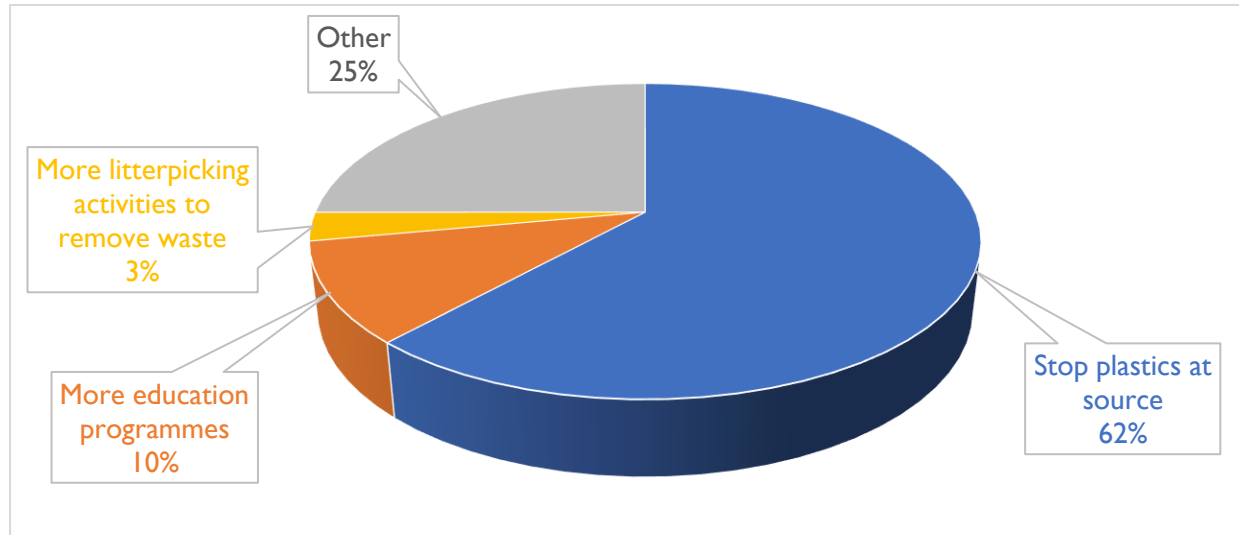
“Bins to put the collection in after, recycling plastics that we do collect”.

“Not being able to go out in organised groups, feel a bit conspicuous on my own”.

**Q. Would you be willing to work with other user groups in the future i.e. Coastal groups working with River groups and vice-versa?**

**94.03%** indicated they would be willing to work with other groups.

**Q. How do you feel we should tackle the problem of plastics in our environment?**



*“education on reducing consumption and reusing then recycling”.*

*“Plastic is here for the foreseeable future we need to educate people to stop using water bottles etc”.*

*“Fine other countries for not disposing of waste properly”.*

*“Something needs to be done about the fishing industry and its waste”.*

*“Support from local authorities, local government and severe fines for fly-tipping”.*

*“all of the above really. If they were stopped at source great but this will take many years and there are still millions of items out there and being dumped. Education is also super important to educate new generations not to spread waste and to encourage removal by us all”.*

*“Certainly, more education e.g. Keep Britain Tidy campaign in the 70s and 80s. Provide easy disposal for bulk plastic waste - fly tipping is common around the coast and relaxation of amenity tip rules could help address that. Plastics are not the issue; it is how they are disposed or handled - we need the public to act responsibly”*

*“All of the above, but emphasis on education and alternatives, and just producing less stuff in general”.*

*“all the above, plus legislation”*

**Q. If the pandemic and subsequent restrictions are still in place next summer, do you feel your activities will continue?**

**81%** of respondents indicated that they would continue with their litter-picking efforts into summer 2021 even if restrictions are still in place.

### 3. Discussion

The percentage of 'other activities' demonstrates how varied people's interests are and how important it is to find that common ground so that people can work together. Finding that common ground in some cases can prove a challenge as some groups have opposing objectives / beliefs.

The act of cleaning the environment you enjoy, may bring these groups together but for this to happen then there must be that mediator between them, or they will not form that partnership.

In contrast a lot of the varied activities do share many common grounds, and goals, but as yet not seen the need, or have the ability to join together for the common purpose.

Activities were affected in many ways - be it through travel limits, group restrictions or shielding. Individual exercise was allowed and continued throughout but has its associated problems of isolation and loneliness.

All of the replies show the passion and desire for people to be involved and do their utmost to solve the problem of plastic pollution. People are gravely concerned about the quantity of plastics in our oceans and river systems. Positives can be taken from this to influence action.

#### Main reasons affecting litter-picks

- Social distancing.
- Limit on distance travelled.
- Fear of contracting COVID 19 from litter.
- Lack of ability of organisations to arrange litter-picks.
- Insurance cover would be compromised.
- Club activities suspended.
- Shielding
- 5-mile rule

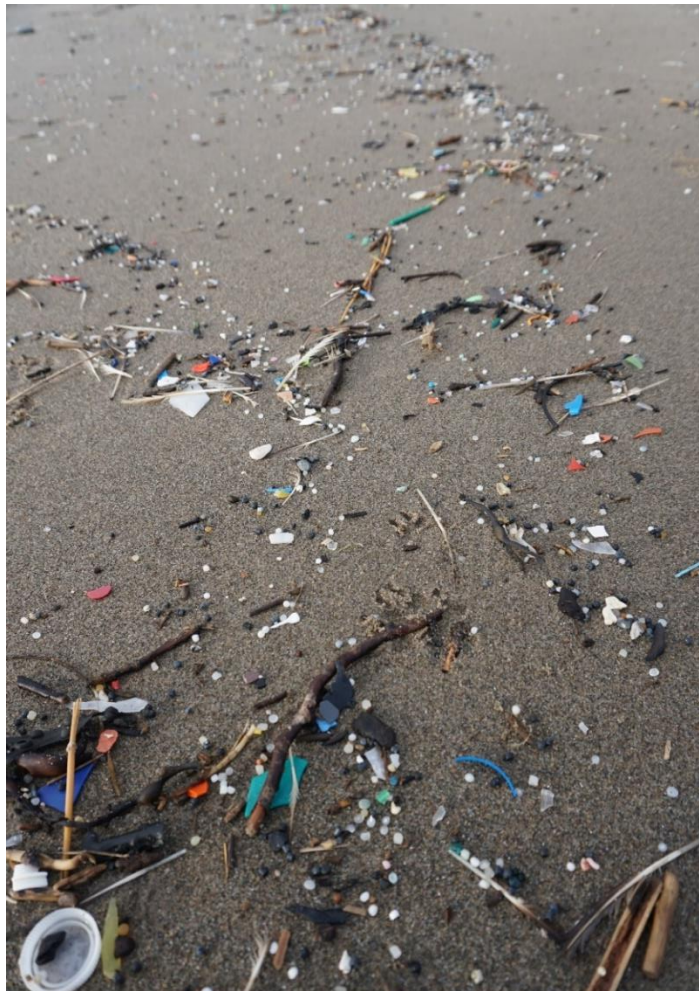


Figure 8 - Micro-plastic pollution along the strandline

People are adaptable and as the graph showing what is important to them when undertaking litter-picks shows- the bare minimum people need is a means to dispose of the litter they collect.

Infrastructure is needed to help them undertake the work and equipment will ensure their safety. The co-ordination of efforts is key to success, this may be voluntary from group leaders but often a project officer from an organisation is needed to ensure everyone is safe, and tasks are undertaken efficiently.



This willingness to work together is a prime opportunity to face not only the problem of plastics in our environment but also could be a channel for groups to resolve any differences in their activities.

It is also an opportunity for large groups to help individuals and smaller groups through resources and organisation. To be part of a larger group would solve isolation issues and give volunteers a much-needed boost. This does not have to be large groups coming together (which may breach COVID-19 restrictions) but simply being part of a bigger organisation with more support networks.

Individuals can still volunteer remotely but feel part of a larger organisation.

This goes to show the dedication of volunteers to collecting waste and demonstrates the concern they feel towards plastics within our environment.

Engagement with these volunteers is essential to help them with their volunteer work, even more essential is contact with the 20% that have indicated they will not be undertaking work if restrictions are still in place this summer.

All volunteer work is essential, and every individual is important to the future of these campaigns.

## 4. Looking ahead to the rest of 2021

The role out of vaccines brings us hope for us this year. All the organisations involved with clean ups will be working hard to ensure that individuals and groups can go out and undertake waste collection safely, following Government guidelines and any further restrictions.

With case numbers reducing and vaccine numbers increasing there is a practical way out of the pandemic. This will enable organisations to increase their efforts across Wales and therefore help individuals and groups to undertake litter-picks.

These organisations will depend on funding to increase their effort so the hope is funding sources will recognise this to help tackle the plastic problem.



Figure 9 - Family bubble litter-pick

### 4.1. Infrastructure available to help individuals and groups

There are many campaign organisations out there that are able to support, guide and help with organising clean ups. Many also provide equipment and insurance, for groups and individuals. Existing groups always welcome new volunteers to help tackle the problem of waste in our oceans and rivers.

Which group individuals choose to join is a matter of choice, it is a case of how best the groups infrastructure meets their ambitions and goals. It may be a useful exercise to outline personal objectives:

- Do they simply want to conduct litter-picks alone when they walk the dog?
- Do they want to get the whole family / bubble involved?
- Do they want to organise large scale clean ups (may not be possible until restrictions lifted)?
- Do they want to be associated with any group?

If an individual decides to join a group or not, strict guidelines set out by the Welsh Government due to Covid-19 must be adhered to, most organisations have their own guidance on this.

There are a number of organisations that are able to help – here are the main ones active in Wales:

#### 4.2. Surfers Against Sewage (SAS)



Surfers Against Sewage was set up in 1990 in Cornwall, as the name suggests it was formed as a reaction to poor water quality along our coast that was still discharging raw sewage. Their campaigns in the 90's influenced policy makers and speeded up the process of sewage treatment throughout Britain.

They have come a long way since then and now campaign for clean seas, rivers, and streets. They actively promote plastic free communities and have an array of ways people can get involved.

They have clear and informative guidance as well as risk assessments for various environments including beaches, rivers or street cleans. One risk assessment are completed insurance is automatically provided.

##### **SAS #minibeachclean**

Their recent campaign #minibeachclean enables individuals to undertake ad-hoc litter-picks when they are able.

More info can be found on their website: <https://www.sas.org.uk/our-work/beach-cleans/mini-beach-cleans/>

##### **Covid-19 Guidance**

In accordance with the current covid-19 guidelines set out by the Welsh Government, SAS also have their own 'Coronavirus Beach Clean Guidance' which can be found on their website: <https://www.sas.org.uk/our-work/beach-cleans/coronavirus-guidance/>

For more information on SAS, please visit their website: <https://www.sas.org.uk/>





### 4.3. Marine Conservation Society (MCS)



The Marine Conservation Society was formed back in 1983 and have had many successes through the years, particularly with their pioneering BeachWatch surveys designed to provide data to aid solutions to reducing beach litter. Their main goal associated with beach litter-picks is to conduct a litter survey of 100m of beach. They provide in-depth / very useful information on their website regarding how to go about undertaking a beach litter-pick and litter survey.

#### Great British Beachclean

The organisation's annual flagship event the Great British Beach Clean is held every September and collect litter data from beaches across Britain. Last year the event was altered slightly in light of covid-19:

*"Our organisers downsized their beach cleans to small groups and enlisted friends, families and 'bubbles' to help clear beaches of litter and take part in the citizen science project. We also extended the Great British Beach Clean to become a weeklong event, running from the 18-25th September.*

*Despite the unusual circumstances, an amazing 2,124 volunteers took part across 459 events. Volunteers found an average of 425 items of litter per 100m of UK shoreline."* (GBBC 2020 Results, n.d.)

For more info regarding MCS's BeachClean for this year and the results from last year visit their website: [https://www.mcsuk.org/news/gbbc\\_2020\\_results](https://www.mcsuk.org/news/gbbc_2020_results)

#### Covid-19 Guidance

MCS have also produced a guidance document for carrying out litter-picks. As long as litter-pickers follow their guidelines and undertake a risk assessment, MCS provide insurance. This insurance is for the specific clean-up / litter survey only but does not insure group activity on an ongoing basis.

This 'Beach Clean and Marine Litter Surveys Coronavirus health and safety guidance' document can be found here (Please note: this link is slightly dated as it refers to summer 2020 when restrictions were not as tight as they currently are):

[https://www.mcsuk.org/beachwatch/sites/mcsuk.org.beachwatch/files/resources/MCS\\_H&S\\_Beachclean\\_Guidance.pdf](https://www.mcsuk.org/beachwatch/sites/mcsuk.org.beachwatch/files/resources/MCS_H&S_Beachclean_Guidance.pdf)

The work MCS does regarding litter surveys and other campaigns has great value but may not accommodate the everyday 'litter-picker' who just wants to conduct litter-picks as and when they have time.

For more information please visit the MCS website: <https://www.mcsuk.org/>

#### 4.4. #2minutebeachclean



The #2minutebeachclean movement has taken off in a big way as it provides a simple means of people to do their bit. The clean-up stations are located around the whole of Wales and provide the bare essential for undertaking a litter-pick i.e., a litter-picker and a bag.

They enable people to do their bit, but it is at their own risk. They do provide a list of health and safety guidelines / do's and don'ts but do not provide insurance. It could be argued that people are responsible enough to undertake litter-picks safely, and the risks involved are very low if all guidelines are followed.

#### **Covid-19 update**

The #2minutebeachclean movement has been affected greatly by COVID-19 restrictions and they issued the statement below during the first lockdown which still applies:

*At the start of lockdown, we advised all owners and guardians to store their #2minutebeachclean, #2minutelitterpick and #2minutestreetclean stations. This was to minimise the risk of infection. As lockdown eases, we advise that the stations can go out but without equipment for the time being - as education tools only - unless guardians and owners can find a way of ensuring they are sanitised between each use.*

For more information about #2minutebeachclean please visit their website: <https://beachclean.net/>

#### 4.5. Keep Wales Tidy (KWT)



KWT have been around since the early 70's and continue to support individuals and groups undertake litter-picks throughout Wales. They have project officers in most counties who are there to help individuals and groups undertake litter-picking activities, if you are a newly formed group they can offer insurance for free for the 1<sup>st</sup> year. After the first year the insurance increases to £73.65 (currently). This is very reasonable and affordable to small groups.

The projects officers are very helpful and can help with all the logistics of setting up a group and the ins and outs of planning a litter-pick.

- Equipment
- Insurance
- Health and safety
- Liaison with council to remove waste.

#### **Litter Champions**

Litter champions has been a concept run by KWT for a number of years. Individuals or family bubbles can apply for a litter picking kit they can at their leisure. They have recently secured funding through Welsh Government and can now offer individuals and families support to conduct litter-picks. This is through European funding which has been confirmed until 2023.

More info can be found here: <https://www.keepwalestidy.cymru/litterchampions>

## Litter-picking hubs

They have also recently set up a network of ‘Hubs’ which hold a stock of litter-pickers and associated equipment that people can borrow to do litter-picks.

As it indicates on their website (link below) these hubs have been affected by COVID-19 as they have been closed because of the risks involved. The hope is they can re-open come the summer.

You nearest hub can be found on their website: <https://www.keepwalestidy.cymru/litter-picking-hubs>



Figure 10 - Location of litter picking hubs

## Epicollect App

Keep Wales Tidy also encourage all their volunteers to utilise the ‘Epicollect app’. This app provides valuable information on the activities of the individual or group. Such information as-

- Time / effort spent litter-picking.
- Location.
- Amount of waste collected.
- Any problems – fly-tipping, dangerous items etc.

This is all very valuable information as it builds a bigger picture of effort that can easily be inputted into GIS mapping and go a long way to help guide projects and influence policy.

## Group clean ups

Whether an individual is already part of a volunteer group or not Keep Wales Tidy can help. A full list of registered community groups located across the breadth of Wales can be found on their website, and are always looking for new volunteers: <https://www.keepwalestidy.cymru/community-groups-map>

KWT can help new groups requiring group insurance, new groups able to apply for free insurance for their first-year volunteering. For more information about starting a group or going out alone / part of a ‘bubble’ please contact KWT on: <https://www.keepwalestidy.cymru/groupinsurance>

## Reducing Plastic Pollution

They are also part of the ‘Clean Seas Partnership’ and actively promote plastic alternatives and have as a result, developed partnerships with a range of companies to help tackle plastic pollution. For more information regarding these partnerships visit:

<https://www.keepwalestidy.cymru/Pages/Category/reducing-plastic-pollution>



## River clean ups



Figure 11 - River debris

you with access and they may already have clean ups planned.

Afonydd Cymru are the group of rivers trusts that cover the whole of Wales: <http://afonyddcymru.org/>

There is not as much emphasis on river clean ups as there is with beach cleans. The fact that a lot of plastic waste derives from inland waterways before it gets to the sea does not seem to infuse people as much. Most inland fishing clubs will conduct river clean ups but unless you are a member the general public are unlikely to hear about them.

Most insurances for shooting and fishing clubs will cover conservation work, if you are a member of a club and are affiliated to an organisation give them a call and see if you would be covered.

SAS provide guidelines for 'River' clean ups, at one time Keep Wales Tidy had a 'Clean Rivers Project' and they still support groups which adopt and commit to cleaning rivers.

If individuals or groups were keen to undertake river clean ups Keep Wales Tidy and SAS could provide support and insurance. For access and helpful guidance contacting your local rivers trust would be the best way forward, they could put you in contact with your local fishing group who could then help

## Hundreds of volunteers will take to banks of the River Dee next week for Big Dee Day 2019



This article is old - Published: Tuesday, Sep 10th, 2019

Hundreds of volunteers will be taking to the banks of the River Dee and surrounding areas over the next week for The Big Dee Day 2019.

The annual clean-up begins on Friday, 13 September, it marks the start of a week of clean-up events along the River Dee and its catchment area.

The Big Dee Day is one of the biggest community and conservation based events in North East Wales and North West England and has been a well-established, annual event since 2007, for which Flintshire, Cheshire and National Resources Wales are key stakeholders.





Covering the coastline and tributaries from Talacre to Chester and south Denbighshire the Big Dee Day is not just a large scale litter pick it's so much more.

Figure 12 Article from Deeside.com <http://www.deeside.com/hundreds-of-volunteers-will-take-to-banks-of-the-river-dee-next-week-for-big-dee-day-2019/>

The 'Big Dee Day' is a multi-agency event that has taken place since 2007. It sees hundreds of volunteers coming together to tackle waste on the whole catchment of the River Dee.

It did not happen last year for obvious reasons. Hopefully, this September it can happen.

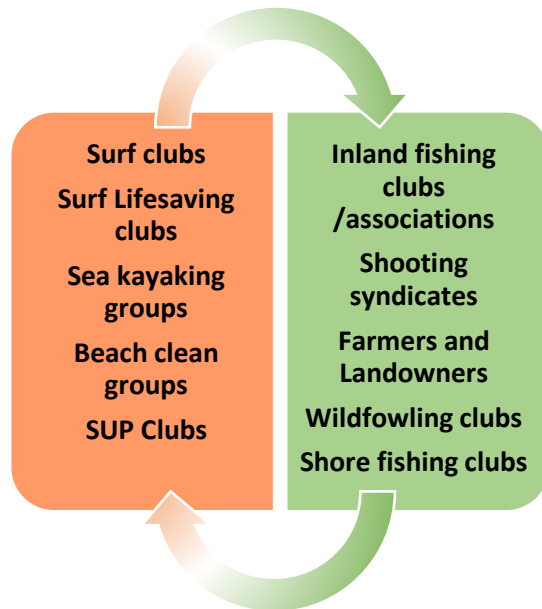
**TABLE OF OPTIONS available to individuals and groups to undertake clean ups.**

Organisation	For Groups	For Individuals / Families	Insurance	Equipment	Contact
	<p>YES</p> <p>Beach cleans organised by regional reps</p>	<p>YES</p> <p>#Mini beach clean</p>	<p>YES</p> <p>On registration</p>	<p>YES</p> <p>For organised beach cleans as a group</p>	<p><a href="mailto:info@sas.org.uk">info@sas.org.uk</a></p> <p>01872 555956</p>
	<p>YES</p> <p>Beachwatch clean ups and surveys.</p>	<p>YES</p>	<p>YES</p> <p>On registration.</p>	<p>Limited to beach clean organisers.</p>	<p><a href="mailto:beachwatch@mcsuk.org">beachwatch@mcsuk.org</a></p>
	<p>YES</p> <p>Groups would be supported for clean ups.</p>	<p>YES</p> <p>Litter champion programme will support individuals and families / bubbles.</p>	<p>YES</p> <p>Free group insurance for first year. Litter champions covered under insurance also.</p>	<p>YES</p> <p>Can be borrowed from hubs when open and from project officers. Litter champions and families supplied with equipment.</p>	<p><a href="mailto:carucymru@keepwalestidy.cymru">carucymru@keepwalestidy.cymru</a></p> <p>02920 726974</p>
	<p>YES</p>	<p>YES</p>	<p>NO</p> <p>All activity at own risk.</p>	<p>YES</p> <p>If you have a #litterpick station near you. Litterpicker and bags only.</p>	<p><a href="mailto:info@2minute.org">info@2minute.org</a></p> <p><a href="mailto:2minutebeachclean@gmail.com">2minutebeachclean@gmail.com</a></p>

## 5. Recommendations / Possible future work programmes

### 5.1. Different user groups working together.

A variety of user groups took part in the survey. A resounding 94% of respondents indicated they would be willing to work with other groups.



Some of these groups have distrust and sometimes conflict of interests, a project to unite these groups would go a long way to solve these conflicts. It could be a case of finding common ground that both groups can relate to.

### 5.2. Key Species

Within all the SAC areas, and the Welsh coastline as a whole there are key species that make it important and unique. For example, the Pen Llŷn a'r Sarnau SAC has Bottlenose dolphins, Grey Seals and Otters as their key / important for conservation species.

**Suggestion** - Joined up approaches on a landscape scale could involve individuals from many user groups – coastal and riverine to come together to look at the key species and help with its conservation. Plastic in our rivers and oceans affects all living organisms including humans.

**Otters** – Otters in Wales do not only use rivers as they often use the sea to forage.



Figure 13 – Otter and Grey Seal (GWCT Picture)





Figure 14 - SAMARCH Project Salmonid Capture

**Sea Trout / Sewin** - GWCT have been running the SAMARCH (Salmonid Management Around the Channel) project in the SW of England since 2017 with masses of data collected of movements of fish in rivers and the sea.

A similar project in Wales would highlight the threats facing them and have the ability to join user groups from all walks of life.

For more information regarding the SAMARCH project:

<https://www.gwct.org.uk/media/1175279/SAMARCH-Project-Newsletter-Issue-01-Feb-2021-INTERACTIVE.pdf>

### 5.3. Virtual litter-picks



Figure 15 - Banner Advertisement for Lockdown Litter-pick

Virtual litter-picks have been undertaken in a number of places around Britain with some success. They enable people to take part in a larger event but still maintain social distancing, with the use of Zoom / Teams etc. They could be conducted live over your phone with organisers talking you through health and safety and participants showing their efforts, they could also be pre-recorded.

With the popularity of the #2minutebeachclean, KWT litter champions, and SAS #minibeachcleans it could be the way forward for litter-picks. We all seem to lead busy lives and committing to set dates and times for clean ups can pose problems.

**Suggestion** - This way individuals / families can litter-pick at their leisure and even if there was a planned virtual litter-pick, nothing would stop them pre-recording their litter-pick / message before the event if they could not make it.

If individuals register with one of the previous mentioned organisations SAS, MCS, KWT and follow their guidelines they will provide helpful advice and insurance cover.

Alternatively, one of the organisations may already have a volunteer group set up in their area that they could become a member of.

#### 5.4. Connected through the phone.

**Suggestion** - Why not set up a virtual community action group who could then register with one of the organisations.

As the world has discovered in the last year almost everything can be done online, creating a social group around litter-picking may be a way of forming groups that never meet in person but still combat plastic pollution and isolation.

Most of the organisations support individual or family efforts, it would be a small step to co-ordinate a wider effort involving many people that may never meet.

All this individual effort could then be collated, and that data set could then be used to form mapping, baseline data, identify problems and as was stated, go a long way to influence future policy. It must be emphasized that all this hard work is valuable to remove plastics locally, but the information that could be collated can go towards solving the larger scale issues of plastic pollution.

The 'Epicollect app' is open source and free to use, Keep Wales Tidy have used it for a number of years with great success. If not Epicollect then some sort of data capture mechanism must be used that is simple for people input data and captures this valuable effort.

There are many ways to solve the problem, as more people have had to become use to the virtual world this may be the way forward in 2021.



Figure 16 - Litter entwined with the seaweed

## 5.5. Whole nation litter-pick

Country wide litter-picks have happened and still do throughout Wales e.g. KWT Big Spring Clean and MCS Great British beach clean.

Could we take this a step further? Instead of a weekend / week / month long campaign, why not have a mass 1 hour or even a 2-minute litter-pick, connected through social media for the maximum impact.

**Suggestion** - As #2minutebeachclean states, 'Every 2 minutes counts!' Efforts could be quantified, how much can a nation collect in a set 2 minutes / 1 hour?

## 5.6. Individual / family clean ups!

With the support of the organisations listed, there is an opportunity for everyone to get involved. Be it #minibeachcleans, by becoming a litter champions or by taking part in beach clean surveys there is an organisation to help ensure participants are safe.

**Suggestion** - If lockdown and restrictions continue litter-picks could be conducted by families / bubble as part of the allowed daily exercise.

People lead busier and busier lives. Many do not want to be tied to a specific time and date to volunteer their precious time, what these organisations have provided is a means to be part of a larger movement without physically working in the same place at the same time.

**Suggestion** - As has been stated these efforts are essential for personal wellbeing and tackling local issues of waste but it is still essential this work is documented in some way so it can go towards larger efforts across Wales, Europe and the World.

## 5.7. Working with schools

Linked to the work with families, when children eventually go back to school why not carry on this work. Historically schools have been reluctant to take children out of school to conduct litter-picks without the help of project officers from recognised organisations.

**Suggestion** - With the change in the Welsh curriculum, there is a greater emphasis on outdoor learning and freedom for teachers to create their own teaching programmes. There is no reason why plastic awareness and litter-picking cannot be integrated into the everyday curriculum and cover many subjects.

The negative stigma associated with collecting litter and its perception of something done as a punishment persists. This needs to change. Litter-picking needs to gain a 'cool' persona. Which to many people it has, but to the younger generation it still has this stigma, the efforts of the organisations mentioned is going a long way to help change attitudes toward litter-picking.

To influence children, it needs to come from their heroes, people they aspire to e.g. sport personalities, parents or teachers.

Education was raised as a potential tool to combat plastic pollution within the survey and schools need to embrace this problem of plastics in our environment. Be it removing single use plastics from schools or conducting litter-picks. There is much more work to be done in this area and at the moment no one organisation is achieving the required results.



## 5.8. Plastic free communities.



Figure 17 - Micro plastics within the strandline

Surfers Against Sewage have led in this movement and to date have helped create 718 communities throughout the UK that are 'single use plastic free' or working towards it.

As **62%** of our survey respondents indicated they wished to stop plastics at source. This is a subject that could be addressed by all communities in Wales. Welsh Government launched a consultation in July 2020 on the **'Use of single use plastics.'**

The consultation included a proposed ban on 9 single use plastics-

- Straws
- Stirrers
- Cotton buds
- Balloon sticks
- Plates & cutlery
- Food and drinks containers made of expanded polystyrene
- Products made from oxo-degradable plastic, such as certain types of carrier bags

The consultation ended in October 2020, we await the results, but this could be a significant step in reducing plastics within our river and coastal environments by stopping them at source.



If we truly want to eradicate plastic waste in our oceans and rivers this ban needs to come into effect. It will not solve all of the problem, but it will go a long way to stopping the most damaging plastic entering the environment.

The global campaign 'Plastic free July' highlights how people can live without plastic. It is in its tenth year and has valuable information to help people strive to achieve a plastic free lifestyle. More information can be found here: <https://www.plasticfreejuly.org/>

**Suggestion** - Why not designate a day a year to go without plastic- 'Plastic free Wales day', this would demonstrate to the population how much we rely on plastics and also show that we can survive without them. This could run along side 'Plastic free July' and encourage people to go the whole month and beyond.

### 'It gives you a sense of pride': what four people learned from quitting plastic for a month

Planning ahead is the easiest way to reduce your plastic waste - but for Plastic Free July participants, there have been some surprising outcomes too



▲ A mesh cotton bag, reusable glass containers and a water bottle are helpful tools for those embarking on Plastic Free July, or just looking to reduce their plastic waste. Photograph: netrun78/Getty Images/iStockphoto

Figure 18 - Article from The Guardian (<https://www.theguardian.com/society/2020/jul/31/it-gives-you-a-sense-of-pride-what-four-people-learned-from-quitting-plastic-for-a-month>)

## 5.9. Better surveying methods.

The way we quantify and assess litter could be looked at in a different way.

Keep Wales Tidy undertake LEAMS (Local Environmental Audit and Management Systems) every year for all local authorities within Wales and have done for at least 20 years. The process assesses a random sample of streets to quantify litter.

The Marine Conservation Society undertake litter surveys through volunteers taking a 100m of beach and counting every piece of litter they find. This provides valuable information but is very time consuming which does put some people off.

There have been and are a number of projects currently looking at aerial surveys to conduct the same type of assessments. The benefits of using aerial surveys is that they can cover larger areas in less time, some projects are utilising deep learning algorithms and artificial intelligence to quantify litter.

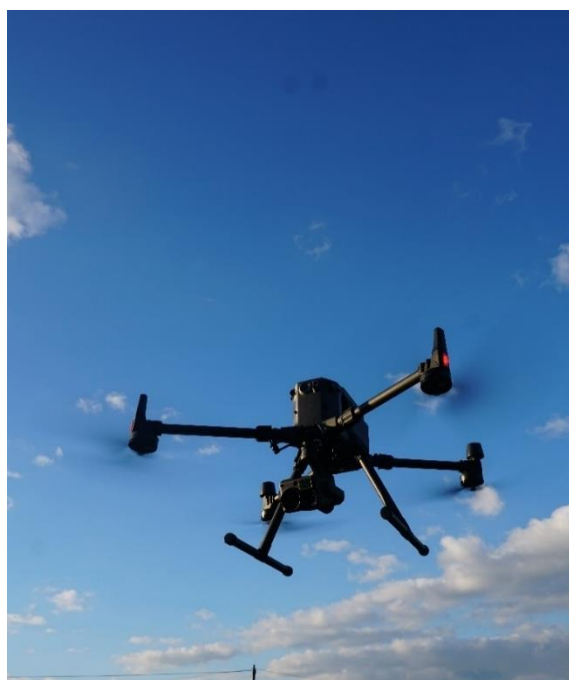


Figure 19 - DJI Matrice 300 Drone in flight

**Suggestion** – Aerial surveys are a great way of assessing cleanliness at a snapshot in time but could go further in making assessments over a longer timeframe e.g. pick a random sample every year but include return to streets with high levels to show improvement.

A project in Scotland called 'SCRAPbook' utilised the UK civil air patrol, and non-commercial light aircraft to build up a map of aerial photos to show the problem of coastal accumulation of waste.

More info here: <https://scrapbook-scotland.org.uk/wp-content/uploads/2020/04/2019-20-SCRAPbook-Update.pdf>

The project achieved great success and working alongside the Civil Air Patrol (Sky Watch) and The Marine Conservation Society they have built a spatial data set to better understand the problem and look at how to tackle it.

This could be done in Wales, perhaps an opportunity to engage with the Civil Air Patrol but also utilise UAV or Drone technology.

**Suggestion** - Drones are becoming more and more prevalent in everyday life and ownership is growing every day. Professional drone pilots could be used to undertake the project initially to prove the concept and refine methodology, but there is no reason why non-commercial drone owners cannot contribute to the data set also.

All they would need to do would be fly their local beach or river a number of times a year, parameters could be set to standardise these flights which would come out of the original scoping project.

This data could be used to:

- Quantify litter.
- Identify dangerous accumulations / items.
- Map locations / hotspots.
- Determine the origins of the litter/waste.
- Find solutions to collect litter.

There are projects happening in Europe that are utilising drones to quantify litter in the ocean and on shore: <https://litterdrone.eu/?lang=en>

Some such as the MARLIT project in Catalonia are using Artificial Intelligence to recognise litter from the air automatically: <https://thenextweb.com/neural/2021/02/10/anti-trashbug-ai-scours-sky-snaps-to-spot-sea-plastic/>

This type of technology needs to be embraced and used for constructive projects to tackle the problem.



## 6. Conclusion - A future without COVID-19



Figure 21 - 'Cofiwch Dryweryn' or is it 'Cofid'?

The future is looking brighter with the role out of vaccines and the infection rate coming down through lockdown. People will still be reluctant to come together in large groups for a time to come and we need to look at the ways we can work round this.

The COVID-19 pandemic has had a devastating effect on lives around the globe and taken many lives.

Individuals, groups and Governments may need to think differently on how we tackle environmental problems such as litter in the future.

The positives from COVID-19 are that we are adaptable, we can find different ways of working. Having to “stay local” for much of the year has forced people into exploring and getting to know their local areas much better. They have therefore come to appreciate it more and become more aware of any changes and the issues it faces (including littering).

This is a prime opportunity to develop these ideas into practical solutions that enable people to enjoy the environment and do their bit to protect / enhance it.

### 6.1. Isolation and inclusion

One of the points that came out in the survey was that people do feel isolated if not part of a group. People may still be reluctant to meet in large groups this summer even if restrictions allow, it is vitally important that volunteer wellbeing is considered with any new project proposed.

Now more than ever all of the ‘Wellbeing’ goals within the ‘Well-being of Future Generations Act’ set out by Welsh Government need to be addressed when volunteers are involved with projects.

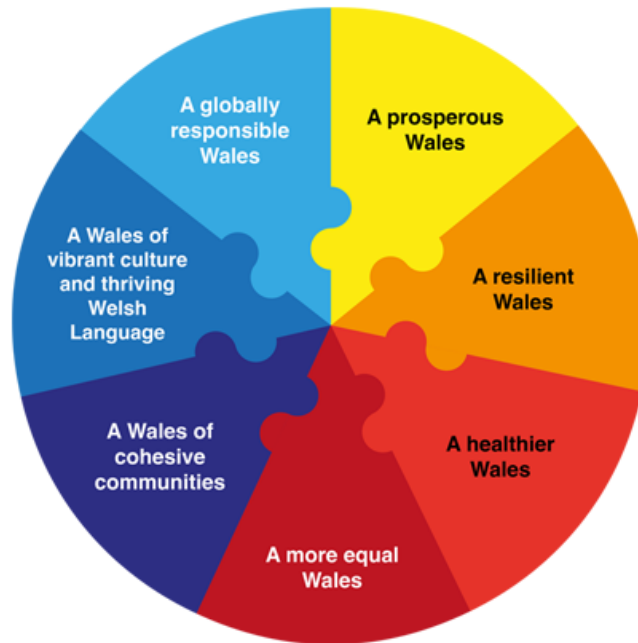


Figure 22 - Future Wellbeing of Future Generation Act

Many of these goals have been touched upon within the survey, and all need to be considered within any project proposals moving forward.

It is important that clean-up campaigns need to look at the impacts of COVID-19 and learn from them so in the future if it happens again then people can be active and feel included even if restrictions are in place.



## 7. Appendices

### 7.1. Appendix I

#### Plastics in our oceans and rivers' survey

Survey Monkey

Q1. Your Name

Q2. Your email

Q3. Get the free GWCT newsletter for the latest advice and research news. View Privacy Policy for more.

Q4. What activity/activities are you involved in on the coastline/rivers of Wales?

Choose one:

- Watersports
- Fishing
- Walking
- Other

Q5. How has COVID 19 effected these activities?

Q6. On a scale of 1-10 how strongly do you feel about plastics/waste in our oceans/rivers?

1 – Not Concerned 10 – Extremely Concerned

Q7. Do you personally or the group you are involved with collect litter on your stretch of coastline or river?

Yes/No

Q8. Would you consider undertaking litterpicks if the right support was in place?

Yes/No

Q9. Has COVID 19 effected your litter-picking efforts?

Yes/No

Q10. Have you seen an increase or decrease in waste during the Pandemic?

- Increase
- Decrease
- No change

Q11. What would you rate as the most important aspect that would/does help you undertake litterpicks?

- Project officer to support you/your group
- Litter collection by council
- Equipment to conduct activity
- Other (please provide details)

Q12. Would you be willing to work with other user groups in the future i.e. Coastal groups working with River groups and vice-versa?

Yes/No

Q13. How do you feel we should tackle the problem of plastics in our environment?

- More litter picking activities to remove waste.
- More education programmes.
- Stop plastics at source i.e. look at alternatives.
- Other (please provide details)

Q14. If the pandemic and subsequent restrictions are still in place next summer, do you feel your activities will continue?

Yes/No

Q15. Would you be willing to talk through your survey in more depth?

Yes/No

## 7.2. Appendix 2

All comments relating to question 5 of the Survey.

Q5. How has COVID 19 effected these activities?

*'Reduced fishing visits and reduced presence on the river to limit poaching'*

*'it prevented me from fishing in remote locations away from all human contact, and a lot less than supermarkets and city parks etc!'*

*'Have not fished at all, caught in confinement elsewhere,*

*'During lockdowns, no water activities were allowed in Wales'*

*'Restricted the ability to go out sea paddling during lockdown'*

*'5-mile limit from home address restricted our activities"The waterway was closed by the port authority so we couldn't use our boat'*

*'I have not been able to litter pick so much'*

*'Reduced the duration and frequency of exercise'*

*'Increased presence from walkers, dog walkers, bird watchers and general activities from the public'*

*'Largely preventing them. No wildfowling and very little fishing.'*

*'during lockdown/firebreak walks were limited only to areas accessible when starting/finishing from home . Outside of lockdown, its been possible to drive further to walk on different parts of Gower'*

*'Personally not at all...through work completely halted activities for now, but hoping to pick up after the fire break'*

*'Restricted ability to travel to different areas for a walk'*

*'As in a rural area my walking has not been affected.'*

*'Restricted to local area during lockdowns'*

*'Other than travel restrictions, not at all.'*

*'Much reduced - fewer activities, events and people on the coast'*

*'Unable to visit the sea but have been dipping in the rivers and lakes'*

*'Increase of individuals going fishing as a way of getting exercise which as resulted in more litter being left behind'*

*'Angling activities that cannot be carried out by walking to the venue have been disrupted.'*

*'Restricted organised beach cleans'*

*'Travel restrictions and some paths too narrow on some coastal paths. Also more people about as they couldn't go abroad'*

*"Severely in the case of fishing"*

*"As an organisation with beach cleaning stations on Wales' coast we have had to remove them, research beach proof sanitisers for the stations, fundraise to pay for them." 2minute beach clean.*

*“During lockdown wasn't allowed to enter the water. Did plenty of coast path and beach walking instead. Outside of lockdown my activity still remained very local and I found it far busier than normal in the holiday periods.”*

*“Rivers and lakes were closed to fishing for a period during lockdown”.*

*“Guidelines suggest that water sports are restricted to ease pressure on emergency services”.*

*“Have only walked by our local river and have been unable to walk coastal paths this year.”*

*“We're a sea kayaking club & the virus delayed the start of our activities a number of technical courses were cancelled”.*

*“volunteers have continued to use their exercise time to keep the village litter free. There are still many residents and visitors walking through the lanes and village. Still some litter including rubbish from cars.”*

*“We avoided the beaches in summer when tourists were allowed to Pembrokeshire as it was too busy and worrying because of the pandemic.”*

*“We have not been active during this period due to many of our volunteers being in the vulnerable category. Also, until recently we couldn't have had the collected litter disposed of”.*

*“Under Keep Wales Tidy guidelines and then Carmarthenshire County Council guidelines, I was not permitted to undertake any litter picking activities for many months and servicing of Litter Champions (collection of refuse) did not recommence until October.”*

*“Full lockdown closed the coastal path although we still had access to the river.”*

*“Paddlesport was affected along with many others during the lockdown period. During the first lockdown all activities were banned but the restrictions were eventually relaxed when it was accepted by WG that paddlesports were a legitimate form of exercise as long as it was close to home. Since lockdown there has been an upsurge in interest in people wishing to take part in paddlesports.”*

*“Long periods of lockdown and/ or travel restrictions have prevented me from engaging in these activities.”*

*“unable to participate in surfing, windsurfing and wing foiling during the initial lock down and the firebreak lockdown and unable to surf really during the Conwy local lockdown due to very few surfable waves in the county”.*

*“Public transport has been restricted, meaning I cannot get to these locations, carparks have also been blocked off. Lockdown restricted me to my immediate area, where it is too far from the coastline to walk and the only river within walking distance is quite near busy traffic, so isn't as peaceful”.*

*“Survey work has been affected but the oyster farm had to continue to be maintained and stock husbandry carried out. Recreational boating has been stopped for much of the time and vessel traffic around the coast has been much reduced.”*

*“Unable to invite volunteers to help with habitat work, species surveys and beach litter picks”.*

*“Not really I usually walk my dog on my own can still do it most of the time with one friend but have to socially distance”.*

*“Unable to organise group beach cleans (Friends of Anglesey Coastal Path: FOACP); group walking with FOACP curtailed but local solo walks still done; kayaking not pursued this year due to social distancing issues.”*

*“As we are able to walk locally away from tourist hotspots, we have not been too badly affected”.*



*“There is now no jet skis, etc. Leaving trails of diesel on the surface. Minimal litter. What I am finding is more old debris, fishing lines, polystyrene fragments and the odd bit of new plastic bags tissues etc.”*

*“during lockdown yes didn't leave the house for months as children off school and working from home”.*

*“Increased this activity in my local area (woodland and rivers) due to having more spare time when furloughed, however reduced my ability to do this along the coast/estuaries”.*

*“Watersports and fishing much less than usual. Walking as normal because I live close to the Wales Coast Path.”*

*“in 2019 I held 9 litter picks, in 2020 I held just two, the Covid lockdown meant there was little opportunity for people to gather in groups. So now I pick mostly by myself.”*

### 7.3. Appendix 3

All comments relating to question 9 of the Survey.

Q9. Has COVID 19 effected your litter-picking efforts?

*"Missed our annual litterpick in spring 2020".*

*"As we have not been able to go canoeing, we have not been on the water to pick up plastic etc."*

*"Our club has only been out on the river a few times this year".*

*"Unable to encourage people to use 2-minute beach clean stations".*

*"Didn't do the MCS annual beach watch event that I normally do. Could not be public due to COVID-19. I could have just done it with family and friends but was too busy at the time due to work."*

*"Our group has not been meeting up because of shielding and self-isolating".*

*"Abandoned them due to social distancing measures".*

*"We minimise our contact & restrict Club activities around the distancing guidelines".*

*"I haven't been able to get more than 2 other people involved at a time to pick litter."*

*"We weren't allowed to make unnecessary journeys so couldn't drive to the beach to litter pick".*

*"Concerned re contact with virus on litter or from contamination from sewage".*

*"Members of Canoe Wales take part in regular litter picks around and within rivers, lakes and coastline. they have not been able to do so this year with many events being cancelled. clubs regularly take part in this event extending it's coverage to inland waters - <https://www.sas.org.uk/our-work/beach-cleans/big-spring-beach-clean/>*

*"Local Authority bodies and charities not available to help".*

*"Can only do it individually"*

*"Unable to get my own litter picking kit from the council as their premises shut down, groups weren't allowed to meet so no group litter picks were advertised, and existing ones were cancelled."*

*"It hasn't affected my own litter picking but difficult for keep Wales tidy and others to organise group ones".*

*"More litter and fewer regulars who do litterpicks OLDER GENERATION"*

*"Unable to arrange group picks as stated. Wouldn't be insured."*

*"Organised litter picks have restricted numbers and are less frequent. My own litter picking is selective due to possible contamination."*

*"I only did litter picking locally which I still do"*

*"I lead a local collaborative campaign that aims to tackle plastic pollution by education and practical solutions. Beach cleans have been difficult this year, as rules have changed a lot and organised events have not allowed at all times."*

*"The five mile travel restriction has prevented the anglers who normally clear up after other people."*

*"Shielding, so afraid I might pick up the virus as there were tremendous amount of litter about"*

## 7.4. Appendix 4

All comments relating to question 10 of the Survey.

Q10. Have you seen an increase or decrease in waste during the Pandemic?

- Increase
- Decrease
- No change

*“Still single use bottles floating about everywhere”*

*“PPE mainly, but also littering from people using the beach as pubs closed”*

*“More roadside and visitor/beach user litter. Masks stand out! And also more disposable bbqs which is a real concern. Otherwise much the same.”*

*“less during firebreak but at weekends many visitors to beaches drive through our village and sometimes leave litter.....cans mainly”*

*“Definitely more PPE”*

*“people still going out and dumping, lack of tip opening times etc”*

*“Less litter to start with but once the fast food outlets were open again it was back to normal. Now there are masks everywhere. Also more flytipping.”*

*“There has been a lot less litter coming up the river but more litter from people on-shore”*

*“More plastic on the beach”*

*‘I clean a beach - litter still coming in from the sea. Although I have noticed a decrease in gun cartridges - less cruise ships with clay shooting of the back’*

*‘Less fast food wrappers initially. Now some discarded PPE’*

*‘Masks & gloves more so than before lockdowns.’*

*Initially I saw far less rubbish than usual other than some examples of fly tipping. However, since lockdown was eased, I have seen evidence of more rubbish in what quieter places were. Generally left after a group/family has had a picnic.’*

*‘Fewer visitors means less litter, but rubbish washed in by the tide hasn't altered’*

*‘possibly more as increased number of people walking on beaches and discarding litter etc then no organised litterpicks that I am aware of locally’.*

*‘litter picking events did not happen so much if at all during lockdowns and rubbish clearing was reliant on council/local services.*

*‘Beach use during the lockdown has reduced public use of beaches and estuaries where we work. The public are the main source of litter (bottles and wrappers) that we observe. The background fishing litter fragments remain unchanged.’*

*‘initially during lockdown no visitors to the beach meant less visitor litter but when restrictions lifted in summer the litter was worse than ever’.*

*‘There is a lot less on beach during lockdown, but it went ridiculously high when everyone came back after them’*

*'Decrease in marine borne waste especially associated with commercial fishing, though possibly due to fewer westerly winds. Increase in 'fly-camping' litter when campsites were closed early summer. Now westerly gales have returned, marine litter is also returning.'*

*'Too many factors to say if Covid has had an impact.'*

*'Less large litter, though plenty of micro plastic still'*

*'During daily exercise, I have noticed waste and I always do. During certain times of this year however, when lockdown ended, the amount of litter and waste along our coastlines from gatherings was frightening.'*

*'There has been an increase in visitor litter. In some cases this is because the bins have been full as collections have been less frequent. However, some are just ignorant idiots who leave their litter wherever they can drop it.'*

*'At first a decrease due to less people being around in nature, however as things started opening up again a large increase, particularly when fast food chains opened up again with drive thrus, waste in those first few weeks was staggering.'*

*'Less litter from tourists, but just as much from the fishing industry.'*

*'Litter here has a seasonal pattern, summer its more visitor based and in the winter its more weather dependant.'*



## 8. References

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