

Find out about...

Climate Change



Caring for our planet

Climate change is the greatest environmental challenge the world has ever faced, and things will get worse if we do nothing.

The good news is we have the knowledge and technology to reduce our impact on the climate, and ease the pressures on the world's most vulnerable places, people and wildlife.

What is climate change?

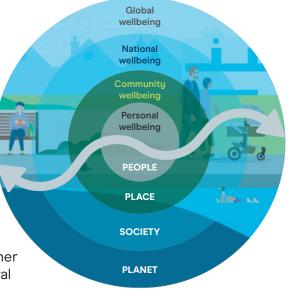
When weather patterns are altered for an extended period of time – usually for decades, or longer – this is defined as climate change. There are natural fluctuations in our climate but scientists believe that current changes are a result of increasing populations and human activities.

Climate change is linked to the 'greenhouse effect'. This is when a build-up of carbon dioxide in the Earth's atmosphere traps some of the sun's heat, causing temperatures to rise and changes in weather patterns around the world.

The impact on nature

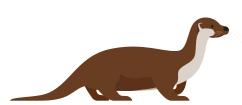
The Earth's atmosphere is warming, faster than it probably ever has. In some cases this has caused weather patterns, climates and natural environments to change so quickly that wildlife has not had time to adapt. Many of the biggest challenges facing nature, such as wildlife extinction, are made far more difficult by climate change.



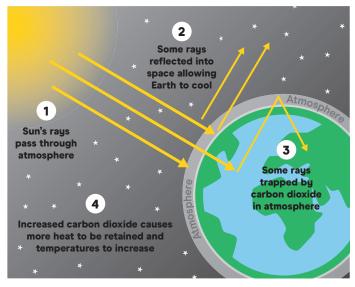


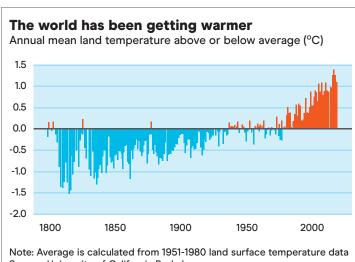
The threat to our waterways

Our waterways are also affected by climate change. The many different habitats around our waterways are at risk, threatening the wildlife that lives there. And extreme weather events could severely damage the Trust's heritage buildings and structures.



The Greenhouse effect





Source: University of California Berkeley



Make a positive difference

Volunteering and Social Action and Skills Development/Employability are the other key strands of our youth engagement work. Every year, more and more young people are giving their time to the Trust and making a positive difference in their community.

Visit our **Youth Engagement pages** to see the range of projects and activities on offer and find out how you can get involved. **canalrivertrust.org.uk/youth-engagement**

About this pack

This pack will help you **Learn** how the Trust is responding to the global issue of climate change on a local, regional and national level. It focuses on four key themes for environment and sustainability:

- Reversing the biodiversity crisis
- Responding to the climate change emergency
- Dealing with projected water shortages
- Achieving net zero emissions by 2050.

You can Watch and Read about some of the exciting projects we are involved in and we've included a glossary to download to help you understand some of the more complicated terms. These are coloured green.

There are lots of ideas for things you can **Create and Do** to support and even replicate some of our work, on a small scale, at home. And we'll also help you take the **Next Steps** to getting involved or volunteering, and helping to add your voice, to support the work the Trust is doing in relation to climate change.



The Trust's climate change response work

The Trust has been delivering climate change response work for many years, for example:

- Helping to protect and look after wildlife
- Looking at ways to use the waterways to produce greener energy. For example, hydropower, photovoltaic cells and wind turbines
- Looking at ways to improve energy efficiency and reduce carbon emissions in everything we do – and we encourage everyone else to do the same!

As the charity that maintains and manages a 2,000 mile network of wildlife corridors across England and Wales, we must continue this good work, whilst continually planning to make positive change.

Taking a proactive approach

In addition to taking steps to protect our heritage buildings and waterways against potential damage from climate change, we must also focus on ways in which our waterways can form part of the solution.

Our waterways can not only encourage biodiversity by continuing to provide a home for hundreds of species of plants and wildlife, they also offer low carbon alternatives for both holidays and transporting goods, and play a vital role in wellbeing. All our climate change work supports the Trust's broader mission and future aspirations as a waterways and wellbeing charity.





Learn: about biodiversity and supporting nature



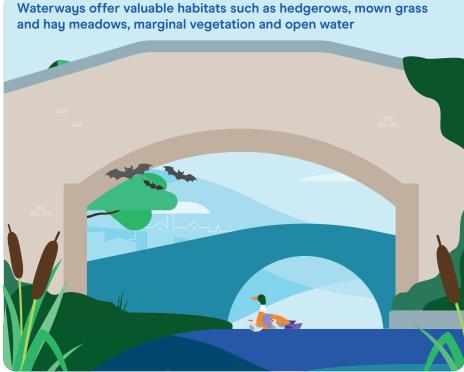
Biodiversity is vital to all life on Earth. Every species has its part to play.

Our canals and rivers provide an incredibly important natural corridor for nature. The waterways bring the countryside into the heart of our busiest cities and link wildlife communities together. Our canals, rivers and reservoirs are some of the most bio-diverse spaces in the country. They are rich in insect and plant life.

The areas around our waterways provide at least six different habitats for wildlife. Large parts of our network of canals, rivers and reservoirs have been officially recognised for their environmental value for wildlife, including over 60 'Sites of Special Scientific Interest' (SSSI).



Changing weather patterns threaten these habitats and the hundreds of diverse species living in them. Our environment team works tirelessly to protect and improve these environments and help the wildlife thrive; creating new habitats, fixing up the canals, improving water quality or providing education to engage local communities. We've received a Green Flag award which recognises places kept to the best possible environmental standards.



Activities to improve the parts of the network that are most important to wildlife include hedgerow planting, creating new protection for reed fringe and improving fish habitats by building fish ladders.

Many freshwater fish do not have the strength to navigate weirs, dams and other structures, to reach their traditional spawning grounds. A major project introducing a series of 'fish passes' on the River Severn has saved the Shad species from near extinction.





The Trust is also planting hedgerows in urban areas for carbon reduction, and trees to replace the thousands of Elms that were lost to disease.

Community orchards have been established around the Gloucester & Sharpness Canal and we can all play a part by collecting seeds and growing saplings of native species at home, which can be replanted by the waterside.

Create & Do: Ideas to support biodiversity and nature

Bring in the bees

Bees pollinate much of the food we eat. A decline in the bee population would have a serious impact on how the natural world functions, including our crops. Currently 35 UK bee species are under threat of extinction so we need to give them a helping hand.

Bees need plants which are rich in nectar and pollen to give them a balanced diet – nectar provides sugar for energy whilst pollen contains proteins and oils.

These shrubs provide nectar for bees all year round – could you find somewhere to plant these? Or perhaps you have one or more of them already and could encourage these to grow.

Shrubs for bees

- Pussy Willow is perfect for Queen bees as they establish colonies in early spring
- Lavender thrives in most soils and is a hit with many different bee species in summer
- Abelia or 'Bee Bush' is an evergreen with white flowers which attract bees in autumn
- Mahonia the bright yellow flowers support bees over winter

But it's not just shrubs that bees love – download our mini poster for more ideas for trees, flowers, herbs, fruit and vegetables to plant, which will attract bees all year round. Many of these can be grown in pots as well as in the ground.

Download our activity sheets at canalrivertrust.org.uk/ youth-resources

Helping hedgehogs

Hedgehogs are in decline in Britain and desperately need our help. There are lots of things you can do – see our worksheet on how to make a hedgehog corridor and build a hedgehog feeding station. For more ideas visit https://www.hedgehogs/ and https://www.britishhedgehogs.org.uk/helping-hedgehog/

Plant a tree

Large numbers of oaks and elms traditionally grew by the waterside. The timber from these trees was perfect for lock building. Oak was used for the lock gates and Elm (which did not rot in the water) was used for sluices. Sadly many of the Elms were lost to disease.

We are planting hundreds of trees as part of our climate change strategy and you can play your part. The activity sheet guides you through the essential steps to grow your own Hawthorn tree, which can be replanted canal-side.



Join in

There's an opportunity for everyone to help with our work to protect wildlife and the environment. You can help gather useful environmental data through activities such as surveying towpath condition, and/or mapping the nature found on your doorstep.

If you are interested in taking part, check out the volunteering pages on our website for the latest information on current projects and how to get involved. Or you can contact us via any of the contact details given at the back of this pack.

Watch and Read

Find out more about nature and wildlife pages at canalrivertrust.org.uk/wildlife

Learn about the work we do to keep our waterways thriving canalrivertrust.org.uk/caring-for-our-environment

Download our waterways and wildlife guide canalrivertrust.org.uk/media/original/33561-waterways-and-wildlife-managing-our-natural-environment.pdf

Visit our environment team blog canalrivertrust.org.uk/wildlife-blogs-and-features

Read how climate change impacts on our historic canals and rivers canalrivertrust.org.uk/climate-change



Learn: about water stewardship

If you compare the Trust's water resources to other utility companies we are the third largest in the UK! We need to do our bit to ensure water is used in a way that is environmentally sustainable.

The UK is known for its rainy weather but rainfall is not always as high as we might expect.

London for example has less rainfall per capita than Morocco.

Climate change has also caused rain to come in heavier bursts so that it runs off the ground rather than into rivers and reservoirs. Add to this increasing demands from a growing population and it is not surprising that the Environment Agency and National Audit Office have both predicted a UK water shortage before 2050.

The Trust is working to find ways to address these predicted shortages and find better ways to:

- supply water directly into homes
- move water around the country without harming the natural environment
- use water to generate sustainable energy such as hydropower and water-source heat pumps



We are also trying to find better ways to collect water and reduce the amount needed to keep canals working. Much of the water used in the canals is taken from rivers but changes to climate mean taking this water could threaten river levels. If rivers start to dry up it would be devastating for the surrounding wildlife and take

many many years for habitats and eco-systems to recover.

The Trust is working in partnership with water companies, consultancies and regulators to find solutions which will protect canals, rivers, people and wildlife. One example is a programme for the river Usk, where salmon are in decline. We have changed the way we remove river water to enable the river to flow and the salmon to thrive, while protecting the supply of water to the public and keeping the Monmouthshire and Brecon canal open to our boating communities.

We encourage good water stewardship amongst all our staff, volunteers, suppliers and boaters; encouraging everyone to adopt water-saving practices at home and at work.





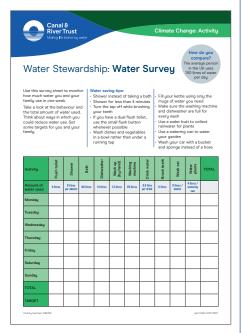
Create & Do: Ideas to support water stewardship

Water survey

There are so many ways we can save water. Why not conduct a water survey to see how water is being used in your home. We've created a template for you to use but you can create your own if you prefer.

Once you have completed your survey, discuss your findings with friends and family and think about what you could do to use less water. You could even speak to a teacher to see if you could carry out a similar survey at school.

Download your water survey sheet at canalrivertrust.org.uk/youth-resources



Download our activity sheets at canalrivertrust.org.uk/ youth-resources



Make your own water butt

Another way to manage water effectively is to collect or 'harvest' more of it. A water butt is a container, of any shape or size that is used to store rainwater. When it rains the water is caught in a drainpipe and flows down into the butt.

Our worksheet shows you how to make a water butt using an old plastic bin. The water you collect can be used to water lawns and plants, rinse crops, top-up ponds and even clean cars!

Refreshing drinks in an instant

Running a tap until the water is cold enough to drink is wasteful. Instead, make up jugs or bottles of water and store them in the fridge so they are ready to drink at any time.

Add lemon, cucumber, lime, strawberries, or herbs such as rosemary and mint to make refreshing infused water drinks. The same ingredients could be frozen in water to make novelty ice cubes to add to drinks.

Watch and Read

The Trust uses money raised by The People's Postcode Lottery to help with challenges relating to water stewardship and making sure our water reserves are secure. Players have raised over £20m for climate action as part of the 'Postcode Climate Challenge'. Visit the 'Support us' section of our website to find out how this funding supports the Trust's work in response to climate change.

canalrivertrust.org.uk/funding-for-climate-challenges



Find out more about People's Postcode Lottery at: www.postcodelottery.co.uk



Learn: about building resilience to climate change

The impact of climate change, in particular severe weather conditions such as flooding and droughts, could be severely damaging for our waterways and heritage buildings. The Trust is constantly looking to find ways to cope with this threat, reduce long-term impact, and protect local communities.

In particular, we need to protect, and reduce damage to, our heritage buildings and structures. We carry out routine inspections, an ongoing programme of maintenance and refurbishment to ensure they remain in good condition, and work to repair/rebuild or better protect against extreme weather events.

But our waterways also have a huge role to play in responding to climate change, and we have been working on projects for many years to play our part in supporting sustainability and fighting against climate change.

Much of this work has focused on energy and resource efficiency, and generating renewable energy from our waterways. Environmental improvement, such as improving water quality and regenerating urban areas, is



another key focus. Not only does this support biodiversity, it has many more far-reaching positive outcomes for the community, such as:

- Economic growth
- Engaging local people in climate action
- Encouraging active travel and improving physical health – towpath improvement has been proven to significantly increase numbers of people cycling and walking
- Improving mental wellbeing by encouraging people to spend time outdoors and better connect with nature

There are so many opportunities and we want to engage local communities, particularly those closest to our waterways, to give their support and get involved. We are producing a 'Great Waterway Places Guide' to show local authorities, developers and other decision makers what waterways can do, and just what a difference they can make to a local area. Going forward, we hope this will become a template for lots more partnerships to address climate change.



Canal & River Trust

Create & Do: Ideas to support building resilience

Write a letter

Are you concerned about your local waterway or a heritage building in your area? Do you have ideas for action that could be taken to protect them? We'd love to hear your thoughts, but you could also think about writing to someone with a lot of power or influence. If they were to get involved with your ideas for action, it could help spread the message to even more people.

Think about writing to someone important to take part in your action. It could be your local MP, a local celebrity or your District or County Commissioner. Use the letter template to invite them to help.



Download our activity sheets at canalrivertrust.org.uk/ youth-resources

Volunteer

Take a look at the volunteering pages on our website to see if there is a project you can help with. If we don't have any opportunities for you right now, make sure you keep checking back to see what is happening in your local area.

canalrivertrust.org.uk/volunteer

Our network is home to
Listed Buildings, Scheduled
Monuments, locks and slipways,
Conservation Areas and
many thousands of potential
archaeological sites. We'd love
to hear from you if you are
concerned about the waterways,
buildings or other structures
near you. Details of how to get in
touch are included at the end of
this pack.



Make a poster or infographic

Communicate the importance of taking climate change action in an eye-catching and colourful way. Which are the messages you feel most strongly about? What are the actions you want to encourage others to take? It's very important to come up with a strong, clear message.

Think about who your target audience would be? Children? Adults? Schools? Uniformed groups? And try to do some research to uncover lots of interesting facts and figures that you might like to include. What will really make your audience take notice?

Why not share your poster designs with friends or ask your teachers or youth group leaders if they would be happy to display them? We'd love to see all your ideas. Please share them with us via social media or email – all details are provided at the end of this pack.

Watch and Read

Watch the video about wellbeing by water canalrivertrust.org.uk/enjoy-the-waterways

Read how climate change impacts on our waterways canalrivertrust.org.uk/climate-change

Learn about almost 3,000 examples of industrial heritage across our waterways network

canalrivertrust.org.uk/canal-heritage

Have you ever thought about a green career? Find out more about the range of jobs you could do for the Trust – from engineers to ecologists to our environment team, we employ hundreds of people, all striving to make sure life is always better by water.

canalrivertrust.org.uk/about-us/work-for-us



Learn: about how we are reducing our carbon footprint

One of the most important ways to tackle climate change is to reduce the amount of carbon dioxide released into the atmosphere. We can all play a part in reducing these 'carbon emissions'.

The Trust is planning to achieve net zero carbon emissions before 2050 and we are excited to support #showthelove – a campaign striving for 100% clean energy within a generation.

Our Green Plan helps us to do this. We partner with the Carbon Trust to understand our carbon emissions and make sure our work leaves as small a carbon footprint as possible – whether it's using 100% renewable energy, reducing energy use for travel,



sourcing products such as timber from credible, sustainable sources, or reducing waste sent to landfill. We've made a lot of progress so far:

- All the electricity we use is from renewable and lowcarbon sources
- We've invested in energy efficient LED lighting
- If we need to travel by road, we are making efforts to reduce use of cars for travel, and our vans are slowly being replaced with electric or hybrid versions
- We encourage our staff to travel by train or other public transport, rather than by car
- And we advise boaters on making their way of life greener by reducing energy consumption, switching to solar power and greener toilets, using cleaning products with fewer harmful chemicals, reducing waste and encouraging recycling.

We are always striving to do more – upgrading old equipment and fittings, insulating buildings to a higher standard, installing more LED lighting, and continuing to invest in the installation of heat exchangers – pumps which use energy that is naturally present within water to provide heating.



Here are just some of the exciting projects we are working on to help reduce our carbon footprint:

- Recycle and reuse plastic: A huge amount
 of plastic is thrown away into or around our
 waterways. We are working with a company
 that can turn this plastic into chipboard to
 make benches and other furniture to be placed
 along the canals.
- Low carbon solutions: Working with The Hepworth gallery on the River Calder to use the river as an innovative low carbon solution to heating and cooling the building. Water is drawn directly from the river and circulated around the building via a heat pump system. We are working to make this renewable energy source more accessible.
- Tree planting programme: Off-setting carbon emissions through a tree planting programme, which not only absorbs carbon dioxide from the atmosphere, but will also add value to waterside communities and wildlife. We plan to extend planting to offset emissions generated by waterway users too.
- Hydropower scheme: We are considering
 whether we can introduce a hydropower unit at the Anderton
 Boat Lift, to generate low-carbon energy. In the future we hope
 it will be possible to introduce many more smaller hydropower
 schemes at more of our sites.



Create & Do: Ideas to reduce your carbon footprint

Make your life greener

Think about all the things you do at home, in your spare time, at school, with friends etc. How could you reduce your carbon emissions? We've provided a template to help you think about all the changes you could make. Share your ideas with friends, other members of your family, or teachers. Or ask them to complete their own version and make plans together. Imagine the impact if we all made our lives just a little bit greener.



Knit yourself warmer

You don't have to be an expert at knitting to make yourself a big woolly scarf to keep you warmer, inside and outside!

You can teach yourself to knit using the 'Learn to knit' worksheet. You can even use pencils or chopsticks if you don't have proper knitting needles! You can use one colour of yarn or lots of different ones – and the thicker the wool, the chunkier and thicker the scarf!

Download our activity sheets at canalrivertrust.org.uk/ youth-resources

Plastic free fun

Whether you're buying a snack, making a packed lunch or grabbing a take-away hot drink, always look for plastic-free options, and carry refillable cups and containers to avoid unnecessary waste. You could even throw a plastic-free themed party – see our activity sheet

for lots of plastic free party ideas plus some great mocktail recipes!



Did you know?

The time it takes for these items to degrade:

- Aluminium can = 200-500 years
- Glass bottle = 4,000 years
- Chewing gum = 5 years
- Apple = up to 6 months
- Plastic bottle = 110-1,000 years
- Tissues = 3 months
- Plastic bag = 450 years

Recycle your old clothes

Get creative and find another use for clothes you were going to throw out. Here's a few ideas to try:

- Hold a clothes swap party and invite your friends over with their unwanted clothing. Share fashion tips, have some fun and create new outfits for free
- Get crafty 1: Make a tote bag from an old t-shirt – see our activity sheet
- Get crafty 2: upcycle and transform jaded items into brand new clothes and accessories. Visit www.loveyourclothes.org.uk for lots of ideas and how-tos
- Get crafty 3: got an old band t-shirt or football strip? Why not frame it and create a piece of original artwork for your wall

Remember: If you can't find new uses for your old clothes, please make sure you recycle everything you are clearing out.

Watch and Read

Learn about the Green Flag Awards, GreenWIn projects for our canals, Sites of Specific Scientific Interest (SSSI) and our Green Plan.

canalrivertrust.org.uk/caring-for-our-environment

Read how we are supporting the Showthelovecampaign which is striving for 100% clean energy within a generation. canalrivertrust.org.uk/wildlife-blogs-and-features

Visit stem.org.uk for lots more ideas for practical action for climate change.

Watch the Crest Awards for a series of challenging and thought provoking real-world STEM projects including ideas focussed on environment and engineering. Or you could use the ideas as inspiration for your own projects.

https://secondarylibrary.crestawards.org/#Gold

Next Steps

We've given you lots of information about the Trust's climate change action plan. Now you can share what you have learned with others.

Always remember to keep yourself safe online at all times. Speak to your parent, carer, teacher or group leader for advice and check out this guidance from www.thinkuknow.co.uk

Create a video or vlog

to talk about climate change and how it could impact our waterways and the surrounding habitats. You could also focus on how the waterways can play an important part in tackling climate change. And don't forget to encourage everyone to play their part too - even if it's just by making tiny changes to the way they live at first. Think of lots of simple ideas to share.

Use our worksheet on producing a video or vlog to help get you started - canalrivertrust.org.uk/ youth-resources

Make a poster or infographic

to communicate the importance of taking climate change action. See page 9 for more help.

Write a letter to someone with a lot of power or influence. Use the letter template at canalrivertrust. org.uk/youth-resources to invite them to help. For more tips see page 9.

Don't forget to tag us in your social media posts and share your pictures, stories and news on Facebook, Instagram and Twitter. Or you can send us all your amazing ideas and creations via email or post.



/canalrivertrust



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Get involved

If you've been inspired by everything you've learned and done we'd love you to get more involved! Contact us to find out about opportunities in your local area.

And please get in touch if you are concerned about the waterways, buildings or other structures near you. We really value your support and would love to hear from you.

Bringing the magic of our waterways to you!

Our towpaths are open for you to exercise and be outdoors, closer to nature. We want you to enjoy your local canal or river, but please follow the government's advice at www.gov.uk/coronavirus on social distancing at all times. Keep your distance from both other people and moored boats, where people may be living aboard and could be self-isolating or shielding.

Events taking part on Trust land will be reviewed on a case by case basis and no event which could put both those attending or our staff and volunteers at risk will be permitted. We will continue to follow the latest government advice and will post updates if the advice changes. Please check individual event details, follow us on social media and sign-up to our email for the latest information.



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visit: canalrivertrust.org.uk/volunteer email: volunteer@canalrivertrust.org.uk

For more information on our youth & community engagement work please email lucie.unsworth@canalrivertrust.org.uk