

HABITAT LOSS

One of the most iconic wetland birds is the **curlew**. With a curved and elongated beak, it is readily identified and they use this to probe the soft ground for invertebrates on which they feed. Due to the loss of so much wetland habitat, curlew populations have tumbled.

As a ground nesting species, any human activity, including dog walking, can impact on successful breeding.



CURLEW

Wetlands are a unique type of habitat where land and water meet. The mixture of plants and animals found there make them extremely important to an array of wildlife. Typically, wetlands are succeeded over time as the vegetation develops, although if maintained through regular cutting (historically the vegetation would have been for thatched roofing) they are a critical habitat for some rare species.

Wetlands are home to a great number of UK species, but there are all too few of these habitats to provide a home in which they are able to find shelter, feed and breed.

Due to the demands of industrial growth, housing and feeding a growing human population, much of our wetlands have been **drained**.

Wetlands are an incredible "**carbon sink**" as they contain trapped dead organic matter (peat) that, if allowed to dry and decompose, releases carbon dioxide into the atmosphere (see "Climate Change page 32). This ability to absorb and store carbon makes the preservation of wetlands a critical part of our response to climate change.

Peat, a soil that is both full of nutrients and retains moisture, has been highly desired by gardeners, but thousands of has been extracted from wetlands. You can help by raising awareness of the need to preserve our wetlands and only purchasing peat-free growing mediums.



Fragmentation is a term used where a habitat becomes broken up. This can occur naturally (e.g. volcanic activity) but is most frequently due to the action of humans. Restricting access between spaces and **isolation of populations**, making them highly vulnerable as they are **less genetically diverse** (due to inbreeding). Connecting wild spaces through **rewilding** schemes is essential to begin to reverse this trend.

Due to the loss of their habitat, breeding pools and the inability to access new homes, fragmentation of great crested newt sites is a significant factor in their population decline in the UK.



GREAT CRESTED NEWT

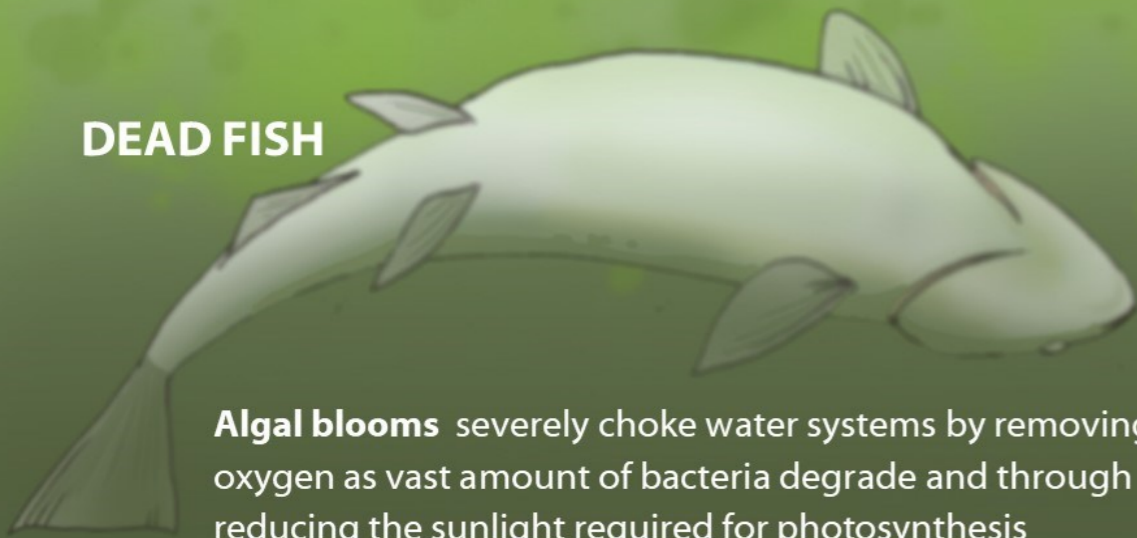
CONSERVATION POLLUTION

Various human activity has resulted in damaging chemicals becoming introduced to freshwater systems. Such pollutants can cause long lasting and even irreparable damage to these sensitive habitats.

The organic waste from humans (sewage) and the animals we intensively rear for food (such as cows and poultry) contains high levels of **phosphorus** and **nitrogen**.

Where unnatural amounts of these nutrients flood ecosystems, there is a sudden bloom in toxin-producing, **microscopic algae**. Such toxins are lethal for all manner of organisms, particularly where they rely on gills to absorb oxygen.

DEAD FISH



Algal blooms severely choke water systems by removing oxygen as vast amount of bacteria degrade and through reducing the sunlight required for photosynthesis (and releasing oxygen in to the water).

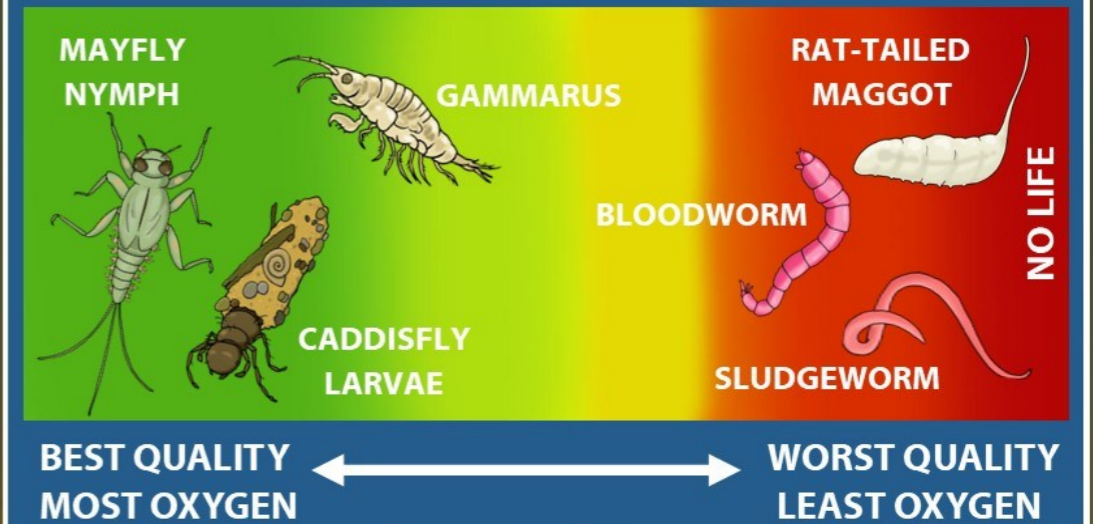
Numerous dead fish are an indicator of these events.

There is a huge problem with plastics in British waterways. Waste bottles not only form rafts of filthy mess, covering areas of water and restricting the movements of wildlife, but they also can become deadly prisons for any small creature that enters them.



Whilst less obvious, there is a growing issue around **microplastics**, tiny fragments of plastic waste that are increasingly widespread. Small particles of **microplastics** settle on the beds of rivers, particularly where flow is poor, and are ingested by small creatures that feed there. The volume of these plastics accumulate as they pass along the foodchain. Responsible disposal and **recycling** of plastics is essential to reduce the level of this pollution. Better still, you could re-use or buy **refillable/reusable containers**.

The wildlife found in aquatic habitats can indicate the quality of the water and how much oxygen is present...



Many disposable, non-reusable items can be all too easily flushed away. All too often such materials enter fresh water systems where, as they are either plastic, or contain plastics, they do not readily degrade.

RAW SEWAGE RERELEASED

The unlawful release of raw sewage into waterways is devastating for the life within. You can find campaigns and more information online.



PLASTIC BOTTLES



NON-BIODEGRADABLE WIPES

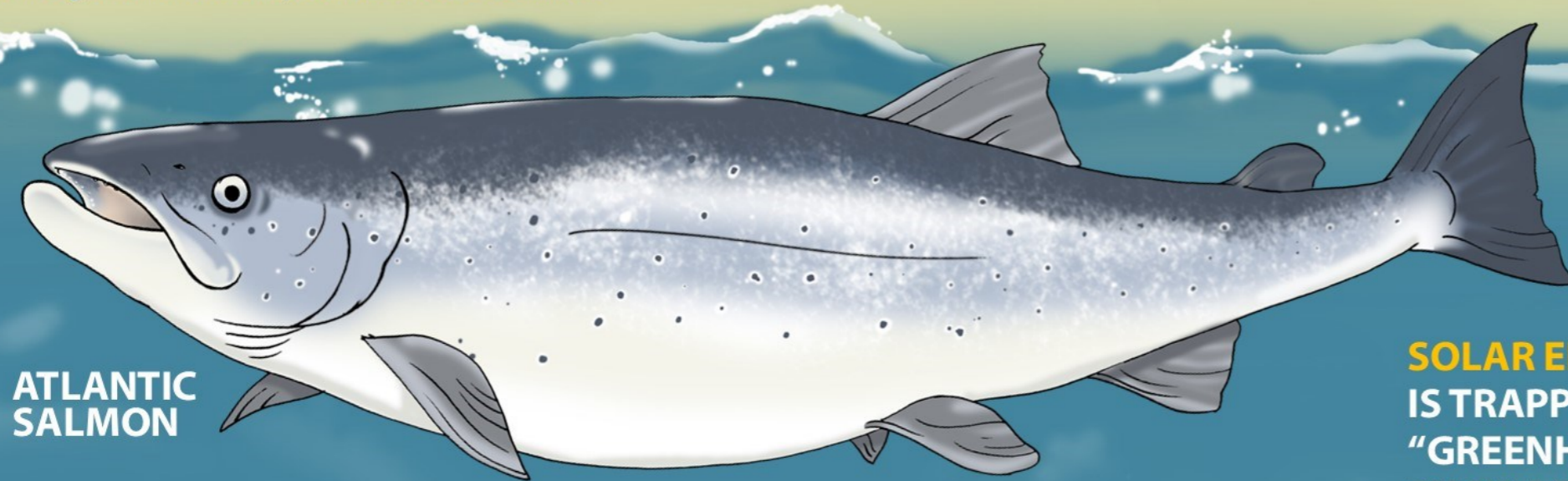
CONSERVATION CLIMATE CHANGE

As water warms, organisms become more biologically active, and so they require more oxygen. The ironic twist is that water holds *less* dissolved oxygen as it is heated.

Temperature fluctuations can be highly impactful on some species, such as the young of Atlantic salmon which take around 6 years to mature in freshwater before a period at sea, before migrating back to breed.

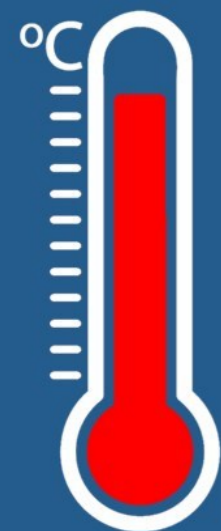
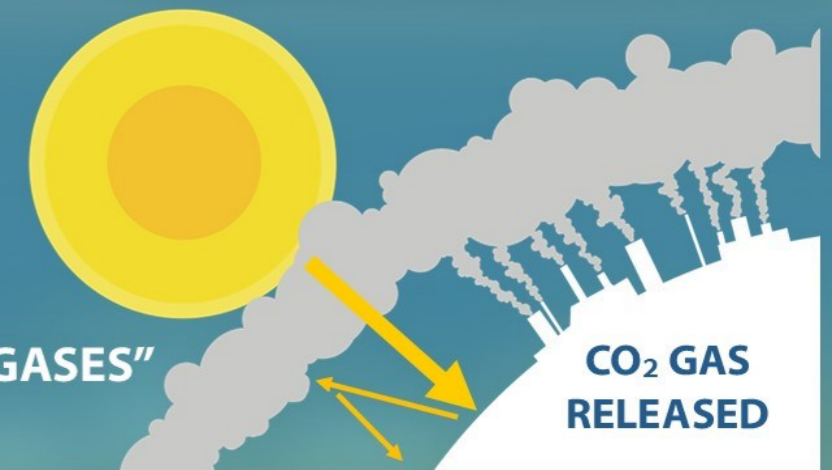
Seasonal patterns, such as breeding are in part dictated by temperature (also event may include the emergence of invertebrates or the growth of microscopic flora), can be disrupted where natural temperatures vary. This has an impact further up the food chain for other organisms that rely on such food sources.

In the UK, we are seeing much more frequent and destructive weather events such as storms and flooding. On the other extreme, periods of reduced rainfall place great demands on water sources. In order to irrigate crops, rivers may have the additional strain of large volumes of water drawn from them. Any dramatic changes to river level impacts on the reproduction and movement of aquatic species.



ATLANTIC SALMON

SOLAR ENERGY IS TRAPPED BY "GREENHOUSE GASES" SUCH AS CO₂



There continues to be a global dependence on fossil fuels which produce the greenhouse gas, CO₂.

Joining environmental groups can be a way of demanding positive changes through people power.

Individuals can also play their part through various life style habitats. Considering our choices as consumers drives the actions of law-makers and businesses. We could all reduce our air travel, demand for meat products, as well as the energy to run and heat our homes, all of which are significant sources of CO₂.

WHAT IS CLIMATE CHANGE?

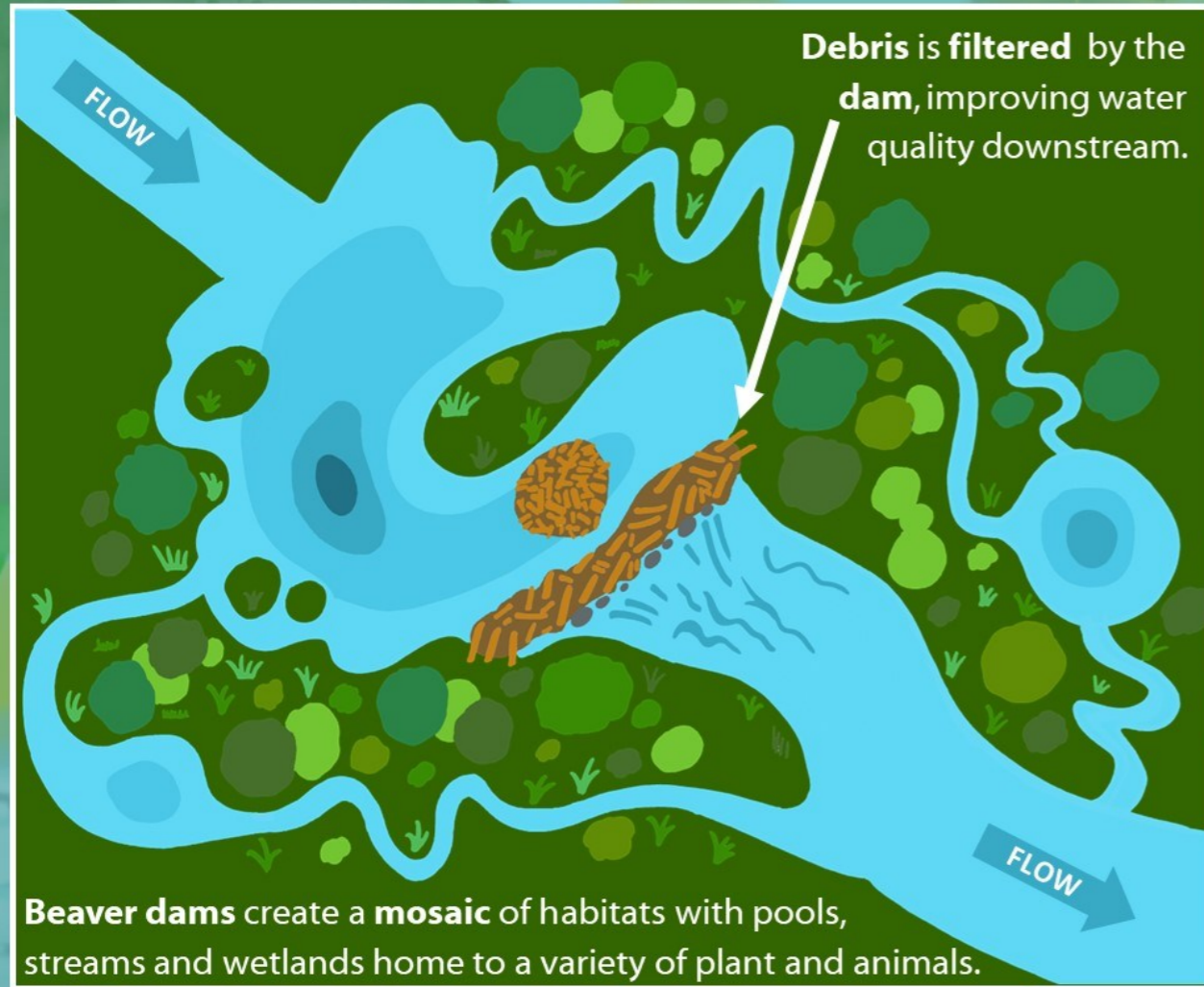
Our planets weather is driven by air currents, which are impacted upon by temperature. Industrial use of fossil fuels, such as oil and coal, release vast quantities of **carbon dioxide gas (CO₂)** into the atmosphere. Such gases create an **insulating** blanket, **trapping heat energy** from the sun, just as glass panels work in a greenhouse, hence the term **Greenhouse Effect**. (see the diagram above).

This human activity has caused temperatures to rise. The consequences of our changing climate has seen ever more frequent and extreme storms, flooding, forest fires and droughts.

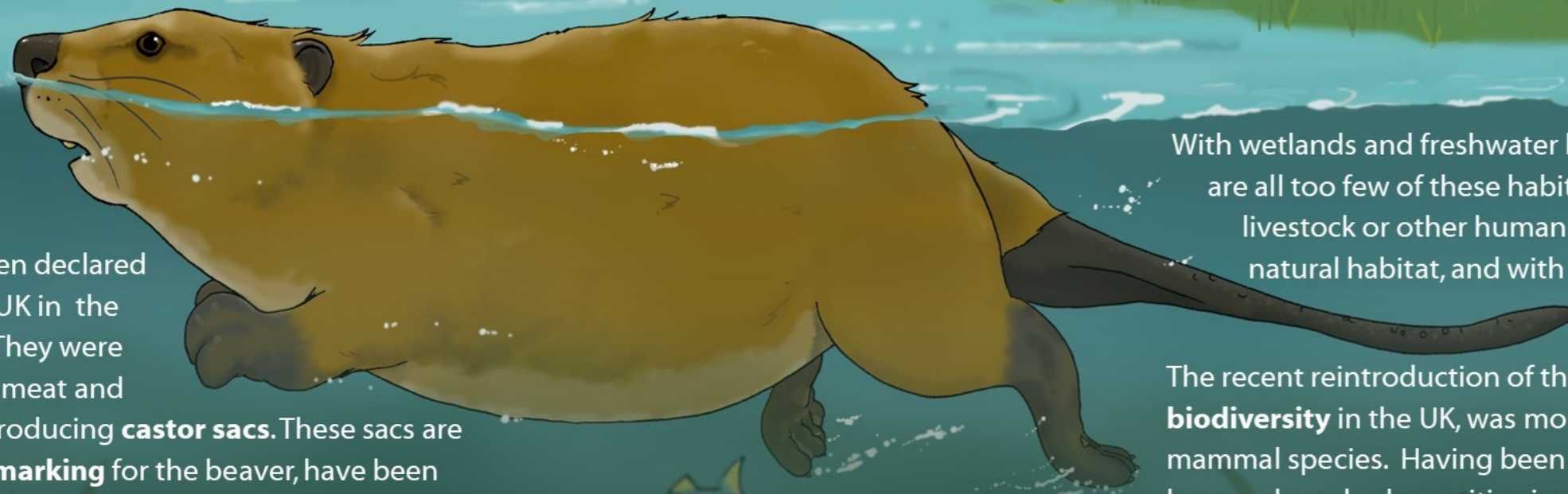
CONSERVATION

BIODIVERSITY

Natural systems are incredibly complex. Their success requires a rich variety of species, all with their own distinct role. Whilst ecosystems require the actions of microscopic life to recycle nutrients and relationships of predators and prey to maintain balance, there are some keystone species that provide a particular special role.



EUROPEAN BEAVER



Beaver had been declared **extinct** in the UK in the 16th Century. They were hunted for fur, meat and strong scent producing **castor sacs**. These sacs are used in **scent marking** for the beaver, have been used in the production of perfumes for humans.

Deep pools afford refuge for fish and their young. These provide food for species such as otters and herons.

With wetlands and freshwater home to a great number of UK species, there are all too few of these habitats. Land required for growing crops, raising livestock or other human activity has massively reduced every kind of natural habitat, and with it, the populations of our freshwater wildlife.

The recent reintroduction of the **European beaver** to increase the **biodiversity** in the UK, was more than just the reintroduction of a single mammal species. Having been declared extinct in the 16th Century, beavers have had a positive impact as "**ecosystem engineers**". Their damming of rivers makes a huge difference to the quality of the water and the variety of habitats around them (see diagram, top left).

As beavers gnaw away tree trunks (a form of natural **coppicing**) the light that penetrates to the ground encourages wild flowers, that attract insects and the numerous animals that go on to feed upon them.