



TOPIC: PEATLANDS

SMALL AREA, BIG IMPACT



Peatlands occupy only a small fraction of the Earth's surface

500 BILLION tons



They store twice as much carbon as the total biomass of all forests combined.



Intact peatlands consist mainly of water. They are wetlands.

A SOGGY HOME

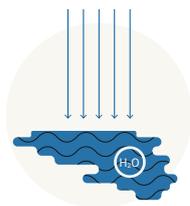


Peatlands are home to many plants, animals, fungi and microorganisms. They form a thick layer of peat from plant residues that do not completely decompose in the moist soil. These living ecosystems take up very little space but provide protection for many resources that are also important for us humans.

WHAT PEATLANDS CAN DO



Peatlands improve **water quality**.



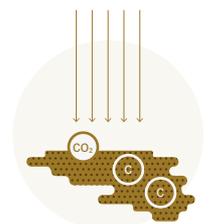
They **store water** in the ground.



Peatlands form **buffer zones** against floods.



They **filter out nutrients**.



Peatlands **store carbon**.



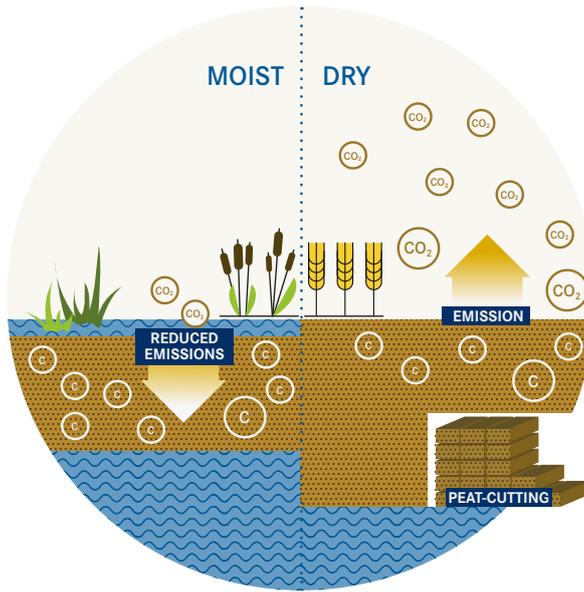
HOW PEATLANDS AFFECT THE CLIMATE

Natural peatlands protect the climate.

Wet peatlands store CO₂ from the atmosphere in the form of carbon (C), because the remains of animals, plants and organisms do not completely decompose in the moist soil.

The result is peat, a sediment rich in carbon (C). Peat was long used as fuel and as an additive in planting soil.

! Almost 30% of the carbon stored in the ground is in peatlands.



98 % of the peatlands in Germany have been drained. !

The drainage of peatlands intensifies climate change.

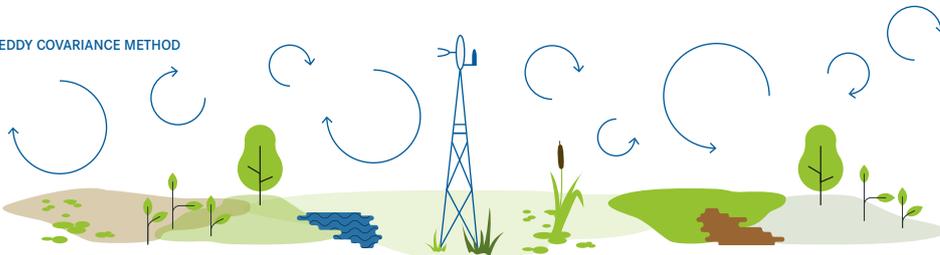
Many peatlands have been drained for agriculture and peat-cutting. This allows oxygen to reach the organic material full of carbon (C).

It is decomposed by microbes that produce CO₂. The stored carbon turns into a greenhouse gas that heats up the atmosphere.

HELMHOLTZ RESEARCH:

GAS FLUXES BETWEEN BIOSPHERE AND ATMOSPHERE

EDDY COVARIANCE METHOD



In Mecklenburg-Western Pomerania, scientists from the Helmholtz Climate Initiative are monitoring a rewetted peatland. They have been recording carbon dioxide and methane fluxes for more than ten years using the high-precision eddy covariance method. The measurements are performed by various meteorological sensors and gas analyzers mounted on a tower to record greenhouse gas fluxes from the surrounding area.

DID YOU KNOW?

Every year, 53 million tons of CO₂ equivalents escape from German peatlands - three times as much as the city of Berlin emits in a year. If all peatlands in the country were rewetted, most of these emissions could be avoided.



INFO

This research is part of a Helmholtz Climate Initiative project on storage solutions in nature.

Peatlands are among the natural places that can release or store CO₂. Whether they drive climate change or absorb greenhouse gases depends on how the land is used. Our scientists are researching how to harness the potential of natural reservoirs to reach climate targets.

Would you like to learn more about this topic?

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