Wetlands filter water because the plants that grow in wetlands act like a strainer.

How Ecosystems Clean Earth's Water

Ecosystems are finely tuned systems in which organisms and the nonliving things around them interact. They can also be useful to humans: ecosystems provide food for us to eat, help keep our air and water clean, move nutrients and other things organisms need to places where they're needed, and more. These processes happen most efficiently when ecosystems are healthy and balanced. One sign of a healthy ecosystem is its biodiversity. Biodiversity is a word that ecologists use to describe how much variety there is in an ecosystem: in other words, how many different species are part of the ecosystem. Biodiversity is important because the more diversity there is in an ecosystem, the stronger the system is, and the less likely it is to break down.

Healthy ecosystems provide many services to humans, including water filtering—cleaning water by removing substances that may be harmful. Read on to learn about some ecosystems that help filter water.

Wetlands are ecosystems that exist in some areas where land and water meet. These ecosystems are often grassy or covered with other low plants, and can be underwater all or part of the time. Wetlands filter water by acting like a strainer: as water flows through the wetlands, substances in the water get stuck on the plants and absorbed by their roots. If the substances are harmful to people, the plants can sometimes turn them into less harmful or totally harmless substances. By slowing down the flow of water, wetlands can also absorb some of these substances into the soil, where bacteria can change the harmful substances into other, less harmful substances.

The ocean is Earth's largest ecosystem, and it filters a lot of water! Ocean water is filtered in many ways, including by oysters and other animals that live in the ocean. Oysters suck water in and use the microscopic organisms they find there for food. Then they spit clean water back out. One oyster can filter about 180 liters (47 gallons) of ocean water every day! In shallow water, this filtering helps grasses and plants growing nearby on the ocean floor. The water cleaned by the oysters is clearer and lets more sunlight get to the plants, allowing them to perform more photosynthesis.

Water in the ocean is filtered through animals that live there.

The trees in forest ecosystems help filter water through their roots.

Not all filtering of water takes place in underwater ecosystems—water filtering can also take place on land! Forests filter water whenever rain falls: trees and other plants shield the ground from the force of falling raindrops and keep soil in place, so both the water and the soil are less likely to wash away. The layer of dead leaves on top of the soil helps filter the water as it soaks into the ground. Tree roots also provide space in the soil for water to soak in, allowing it to be cleaned by bacteria as it passes through the soil. In the forest, water can either stay in the ground as groundwater or find its way into rivers and streams—and it's well filtered by the time it gets to them.

Filtering water is just one of many services provided by ecosystems. Since they provide things we need, it's a good idea for humans to make sure the ecosystems around us are healthy, with plenty of biodiversity.