



Wonderful Wetlands

Do you know all the wonderful powers of wetlands?

Goals:

Be able to identify three wetland characteristics.

Be able to list ecoservices provided by wetlands.

Be able to identify wetlands in their surroundings.

Words to Explore

Wetland
Ecoservices
Water table
Nutrients
Sediment

Did You Know?

About 80% of the natural wetlands in Tennessee have been drained.

Wetlands are exactly as they sound, lands that are wet most of the year! Wetlands occur in low-lying areas in the landscape, and often around rivers, lakes, and oceans. Wetlands are unique and a natural part of our environment.



Did you know?

Wetlands have many names. They are also called:

- Swamps
- Marshes
- Bogs
- Fens
- Quagmires

Can you think of any other names for a wetland?

Wetlands do many important jobs:

- Wetlands are like sponges soaking up water and pollutants.
- Wetlands are transitions between waterways and the surrounding land (such as fields, neighborhoods, and forests)
- Wetlands make great habitat for many different types of wildlife. Birds, amphibians, fish, insects, mammals, reptiles, and many different types of plants can be found in wetlands.

A wetland needs three things: **soil, plants,** and **water.** The soil in a wetland is saturated for a long part of the year, and has special characteristics because of this. Plants that grow in wetlands are particular types of plants that can survive living in wet, saturated soils AND also live through a dry seasons. The water in a wetland is connected with the *water table*. The water table is the level in the ground where the groundwater meets the surface water.



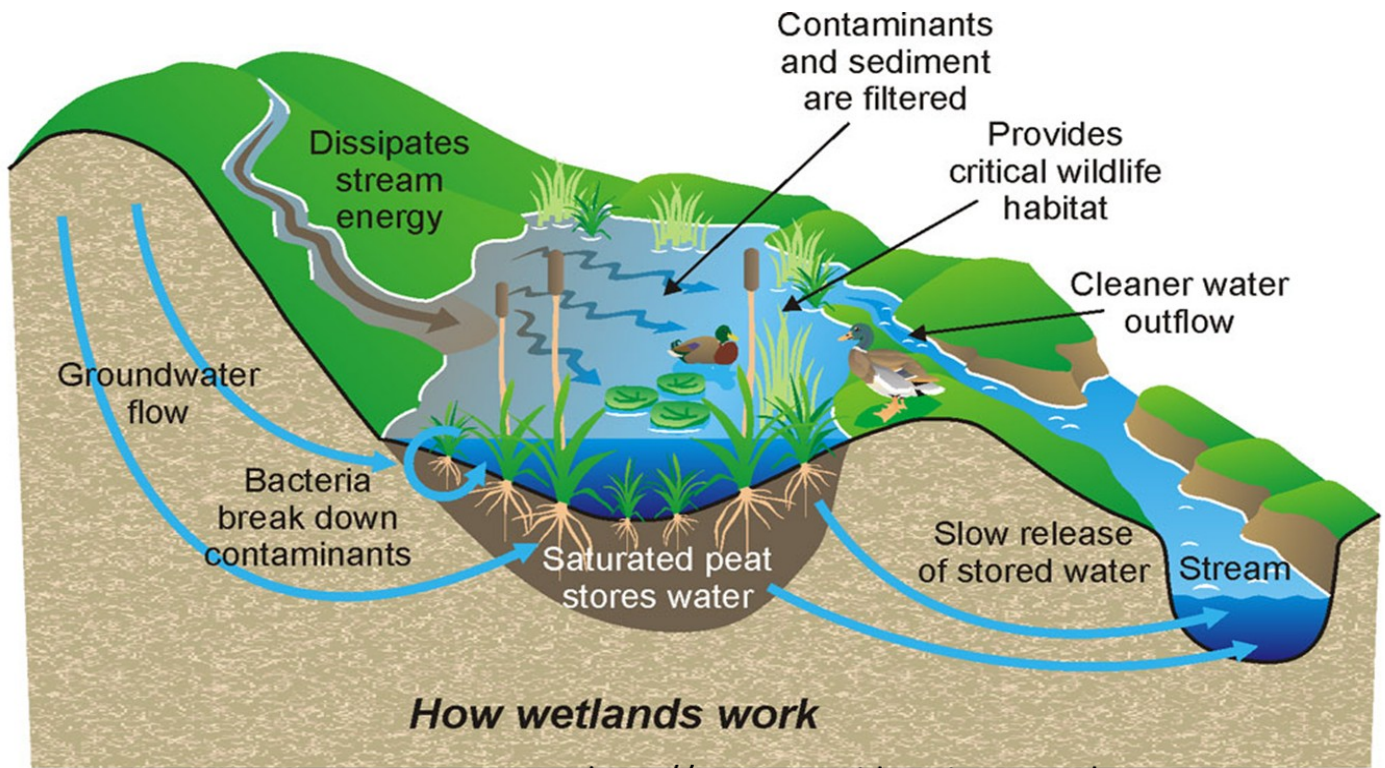
Thick root mat.

Wetland plants' roots are long and dense. These plants slow down flowing water with dense clumps of stalks.

Wetland plant roots hold soil in place to prevent erosion and soak up pollutants from the water, making the water cleaner than it was when it entered the wetland.



Wetlands provide many different functions of the environment that benefit us. These functions are also known as *ecoservices*, which are services that the ecosystem (or environment) perform naturally that keep our watersheds clean and balanced. Some of these ecoservices include providing habitat, absorbing floodwater, filtering runoff, and decreasing erosion. *Nutrients* and *sediment* are examples of pollutants (or contaminants) in runoff that are absorbed by wetlands.



Activity: Free Services!

Many common household items are good metaphors for wetland ecoservices. Draw a line from the household item that is a metaphor for an ecoservice provided by a wetland:

Sponge	Resting place for migrating birds
Bed	Purifies water
Whisk	Removes large sediment from water
House	Absorbs runoff and floodwater
Coffee Filter	Provides nourishment for wildlife
Sieve (or colander)	Habitat for wildlife
Food	Mixes nutrients



Before the settlement of America in the 1600's, there were over 221 million acres of natural wetlands. About 85% of these wetlands have been lost due to human activities like farming, creating cities, and industry.

Materials

- Foil baking pan
- Gravel
- Sand
- Soil
- Hand shovel
- Large sponge
- Scissors
- Spray bottle or small watering can
- Toothpicks
- Aluminum foil
- White plastic tray



Figure 2. States with notable wetland loss, 1780's to mid-1980's. (Source. Modified from Dahl, 1990.)

Activity: Wetland in a Box!

Create a model to show how wetlands act like sponges to soak up rainwater, filter runoff, and slowly release clean water to streams.



Gather materials and start with an empty foil baking pan.

Place two heaps of rocks at the sides of the box., like two mountain peaks or hills.

Place a layer of sand between the two rock heaps, like a river channel.

Cover the entire box with a mixture of topsoil and clay and compact it down.

Use a watering can with small holes or a spray bottle to “rain” on the landscape.

Now dig a small trench at the bottom of each mound (but uphill from the sand in the valley) and set a piece of sponge at the bottom of each mound, between the peak and the valley.

Secure sponge tightly against the soil surface with toothpicks.

“Rain” again on the landscape.

Use aluminum foil and other materials (like moss from the yard) to create a unique watershed landscape. The aluminum foil acts like impervious surfaces (like concrete parking lots) and the moss acts like grasslands or prairie fields.

Finally, remove the toothpicks and take out the “wetlands” (or sponges), and wring them out onto the white plastic tray.



Step 2. Laying the geology of your watershed.



Step 3 & 4. Creating your river or lake and adding your soil layer.



Steps 6 & 7. Adding wetlands to your watershed.

Reflection

Show off your wetland in a box. Explain to them the topography, the peaks and valleys and how water will flow downhill.

How does the water moves across the clay, soil, and sand as it “rains”? Does it always move downhill? Why or why not?

Was your runoff water clean or dirty? _____

What happened during the second “rain” storm? How did water move?

What happened when the runoff hit the sponges? How did the sponges change the way water moved into the valleys?

After you squeezed out the sponges, what did you see in the tray? What types of things did your wetlands absorb?

Apply: Next time you are on a drive, look out the window and notice where you see wetlands. Do they have grasses, or shrubs, or trees, or all three? What kinds of ecoservices are the wetlands providing your community? How can we help preserve wetlands?