



Home in the Muck

Shoreline plants help protect ponds and lakes while providing food for critters that live there

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A kayaker drags her vessel to the shoreline of a small lake looking for a place to put in between the tangle of plants. As her feet sink into the mucky ground, she startles a red-winged blackbird out of its woven nest of cattail leaves while a school of small bluegills dart into the water from the weedy shoreline and a spotted turtle scurries for cover among the plant stems. These shoreline plants known as macrophytes—macro means big; phyte means plant—keep the lake healthy and provide food and shelter for fish and wildlife.

A HEALTHY PRESCRIPTION

What humans may think is a messy, weedy, mucky, nasty, insect-filled shoreline is just right for lakes and ponds. This part of the lake—known as the littoral zone or “shore zone”—is shallow, allowing sunlight to filter to the bottom and provide energy for plants to grow. The mass of roots growing here keep soil and sediments from washing into the lake when it rains. The roots absorb and filter out chemicals and pollutants from water rushing off nearby parking lots, playing fields and roads during storms. A healthy shoreline is often home to a variety of plants grouped into three categories based on where they grow, their growth habit and what they do.

WHO EATS WHOM ACTIVITY

All living things need energy to grow and survive. Plants get their energy from the sun and use it to make food that is stored in their roots, stems, leaves and seeds. Some animals get their energy by eating these plants. Other animals get their energy by eating the animals that eat the plants or eating other animals that eat the animals that eat the plants. Showing a feeding relationship in a line with an arrow pointing in the direction of energy flow is called a food chain. Most food chains start with a plant.

ARROWHEAD PLANT → MALLARD DUCK → FOX

Many food chains added together form a food web showing a variety of feeding relationships in a habitat.

The next time you are near a shoreline with lots of aquatic plants, take time to create a food chain or food web of the plants and animals you observe.

MATERIALS: Camera on smartphone

- STEP 1:** Take a picture of one of the plants you observe.
- STEP 2:** Take a picture of an animal eating the plant. (Hint: Look back in this article to find out what kind of animals to look for.)
- STEP 3:** Take a picture of another animal you see (frog, bird, small mammal).
- STEP 4:** Create a food chain using your photos (remember to start with the plant). Draw in arrows to show the flow of energy from plant to animal, or animal to animal. You may have to do some research to find out who eats whom.

ARROWHEAD

HEADS UP/HEADS DOWN

Plants with funny names like duck potato, arrowhead and cattail grow with their stems, leaves and flowers above the water. They are referred to as emergent or emergent aquatic plants, which literally means protruding above the surface. You will not find them floating in the middle of the lake because their roots love growing in the water-soaked soil at the lake's edge or in the soil right under the shallow water's edge. These roots bind soil and sediment and break up waves, important functions that prevent soil from washing into the lake.

Ducks eat tubers that the duck potato plant produces to store its starchy food, hence the name. As wasps, bees and butterflies flit from flower to flower gathering nectar and pollen, they carry the pollen from one duck potato to another. The pollen fertilizes a flower's eggs which then grow into seeds, ensuring the next generation of duck potato plants grow. The seeds also provide food for ducks and other waterfowl. The insects often become food for hungry wild critters, like leopard frogs, American toads and fish, who then provide food

for great blue herons and other predacious birds. Snakes and mice find food here too and hiding places from hawks and foxes searching for prey.

Paddling slowly, the kayaker pushes through a jungle of submersed lake plants. “Sub” means “under” and describes how these plants grow under the water's surface. She notices one plant with soft, feather-like, narrow leaves surrounding the stem and recognizes it as a coontail, named after the raccoon whose tail it resembles. Some submersed aquatic plants, like the coontail, have free-floating roots. Others, such as pondweed, have roots that grow in the soil at the bottom and has both submersed and floating leaves.

Free-floating roots absorb nutrients from the water while anchored roots absorb nutrients and metals from the soil. These plants help keep the lake water clear and provide plenty of oxygen in the water for small fish and aquatic critters. Snails and insect larvae find food on these plants and in turn provide food for small fish swimming close to shore. Muskrats love munching on coontail leaves.

FREE FLOATERS

Tiny duckweed floats at the water's surface with tiny roots absorbing nutrients from the water. Water meal, a type of duckweed, is one of the smallest flowering aquatic plants. These plants are often seen on shallow ponds and in swampy areas.

As free floaters, emergent and submersed plants die, their leaves, stems and roots add to the mucky lake bottom, eventually causing these bodies of water to become shallower.

PONDWEED

Get Outside

Many city, county and state parks have lakes with fishing piers and boat ramps and are surrounded with walking trails just waiting for you to explore. The next time you are meandering on a lake trail or fishing from a pier, check out the shoreline. See if you can tell the difference between the emergent and submersed plants growing there.

Some aquatic plants have spread to areas where they do not naturally belong and can harm the lake by choking out native plants and forming masses that clog waterways. If you kayak or canoe on a shallow lake, be sure to wash your boat at home so tiny plant parts and seeds are not accidentally introduced to the next waterway you explore.

CATTAILS