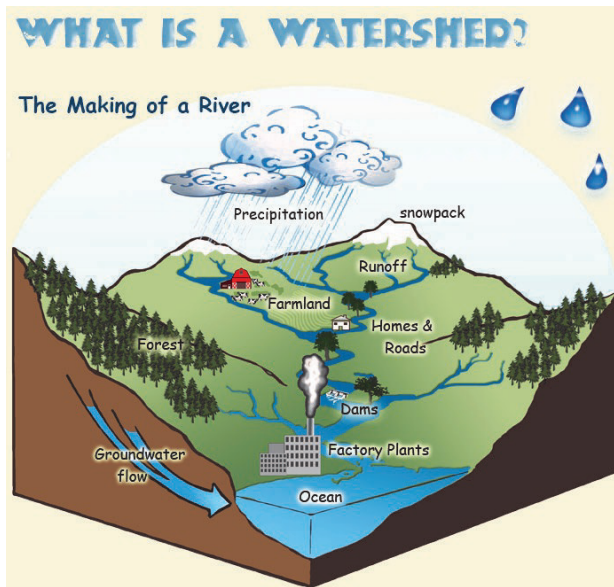


Why should everyone care about the vegetation in Pow Wow Pond?

THE FRESH WATER SUPPLY

While excess nutrients leading to an increase in vegetation can obviously affect the look of a water body and reduce the ability to perform certain recreation activities, nonpoint source pollutants also have a direct affect on how safe the water is for humans to drink or swim in. Surface reservoirs, that are easily contaminated, provide drinking water to over 200 million people in the United States, more than double the number of people served by groundwater systems. Drinking or swimming in contaminated water can lead to a wide range of health issues from skin and eye irritation, and gastrointestinal distress (diarrhea, vomiting, and cramps) to nervous system effects, and increased risk of cancer.



It's All Connected

Pow Wow Pond is part of a watershed. A watershed is the area of land that drains into a common outlet. As it rains the land acts as a funnel where all water flows downhill to a common location, such as a stream, river, pond or lake. This means all of the activities that produce nonpoint source pollution upstream of the pond affect the quality of the water in the pond. In addition to the activities taking place directly around the pond. This ultimately means that everyone in the watershed is responsible for making good decisions about what they put on their lawns, how they maintain their cars, and how they deal with waste.

Furthermore, water in Pow Wow Pond flows out the Pow Wow River into other bodies of water including the Merrimack River and the Atlantic Ocean carrying with it any and all contaminants. This means that the nonpoint source pollution going into Pow Wow Pond can have negative effects on a much larger area. While it may not seem important to protect the water quality of those down stream there is only so much fresh water on Earth, so once it is polluted it will be difficult and costly to clean-up.

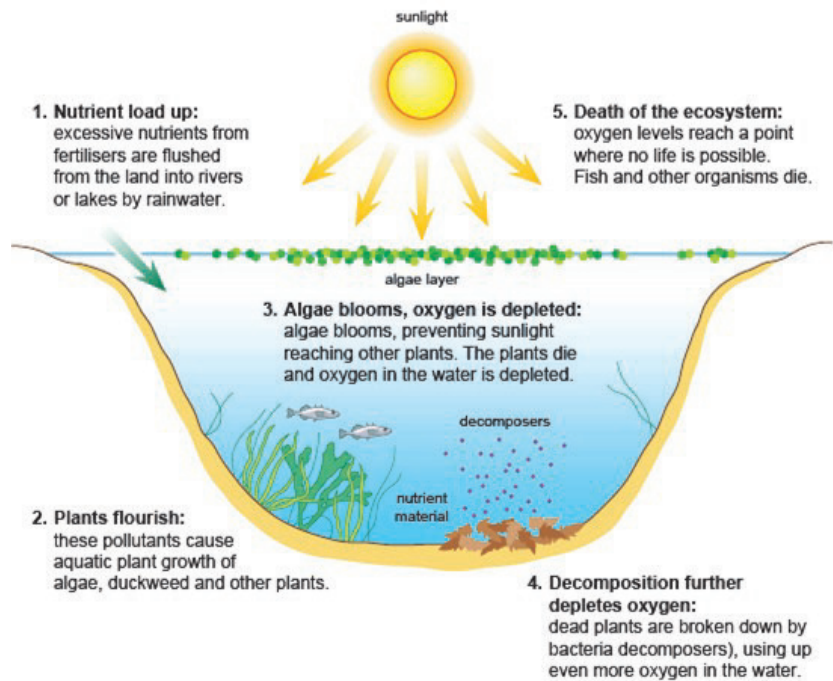


No more fishing?

A CHAIN REACTION

The Earth is a delicate web of interactions between organisms and their predators/prey. When the balance of the ecosystem is upset, all of its inhabitants are greatly affected. One species of plant or animal lost could mean a complete collapse of the food web. For example when a specific submerged plant is shaded out by algae growth at the pond surface, due to nutrient runoff, the populations of organisms that depend on that plant will be reduced in proportion to the number of plants remaining. This then affects the animals higher on the food chain who now may not have enough food to eat.

While the problem of increased plant growth may seem unimportant, the process of eutrophication is more complex than it first seems. The figure shows how nutrients flowing into the pond leads to a rise in both floating vegetation and algal blooms. As these surface plants thrive they block out sunlight to plants that live at greater depths in the pond. As these submerged plants die, they no longer photosynthesize and produce oxygen for fish and other aquatic organisms. Furthermore the dead plant material sinks to the bottom of the pond where it is decomposed by microorganisms that also need oxygen, leading to even lower oxygen levels. As oxygen levels decline, the composition of fish species present will change dramatically. Pickerel will likely be lost from the ecosystem first and then bass. However, as long as some food is available catfish will flourish at even the lowest oxygen levels.



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