



The hazards of pond overenrichment.

in—or if fish feed is added. Algae and other plants then become overabundant. Stagnant lower layers may lose dissolved oxygen and have such build-up of toxic gases in summer and winter that fish become sick or die. This problem is especially acute in winter under ice cover, and mass die-offs of fish, termed “winter kills,” are common in shallow ponds with much organic matter.

### Facts About Water and Chemicals Dissolved in It

Water is the chemical basis of life. It moves and carries things with it, including the many substances it dissolves. It affects light entering a pond. It buoys up plants and animals of a pond. It changes in density as it changes in temperature and chemical content. Water is almost unique among substances in

being lighter as a solid than as a liquid. The fact that ice floats atop ponds in winter rather than growing upward from the bottom (or falling there after forming at the surface) is profoundly important to pond life.

Although rain and snowmelt water wash solid and dissolved substances from the land, a pond can often get much of the carbon, nitrogen, oxygen and hydrogen its organisms need right from the gases in the air. Pond water can be rich or poor in other plant nutrients (calcium, potassium and phosphorus), depending on their abundance and solubility in the surrounding land.

Many ponds have only low or moderate amounts of aquatic vegetation in them because, although all other conditions are right for growing many plants, little phosphorus enters from surrounding land. A well-vegetated landscape will permit even less phosphorus to enter the pond. In such situations, phosphorus is the “limiting factor.”