

A year in the life of a lake

Winter is a quiet time. Ice blocks out the sunlight and also prevents oxygen from being replenished in lake waters because there is no wind mixing. With little light below the ice and gradually diminishing oxygen levels, plants stop growing. Most animals greatly slow their metabolism or go into hibernation.



Spring is a period of rejuvenation in the lake. After the ice melts, all of the water is nearly the same temperature from top to bottom. During this period, strong winds can thoroughly mix the water column allowing for oxygen to be replenished throughout the entire lake.

This period is called spring turnover. Heavy rains, combined with snow melt and saturated soils are a big concern in the spring. Water-logged soils are very prone to erosion and can contribute a significant amount of phosphorus to the lake. Almost all soil particles that reach the lake have attached phosphorus.



Summer arrives and deeper lakes will gradually stratify into a warm top layer and a cold bottom layer, separated by a thermocline zone where temperature and oxygen levels change rapidly. The upper, warm layers are constantly mixed by winds, which “blend in” oxygen. The cold, bottom waters are essentially cut off from oxygen at the onset of stratification. Cold water fish, such as trout and landlocked salmon, need this thermal layering to survive in the warm summer months and they also need a healthy supply of oxygen in these deep waters to grow and reproduce.

Fall comes and so do the cooler winds that chill the warm upper waters until the temperature differential weakens and stratification breaks down. As in Spring, strong winds cause the lake to turn over, which allows oxygen to be replenished throughout the water column.

