Thermal Stratification (Water) Encyclopedia Article

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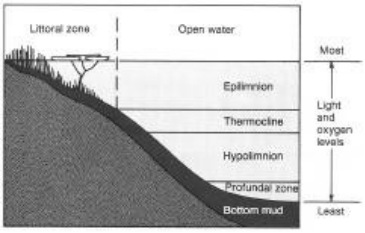
The development of relatively stable, warmer and colder layers within a body of water. Thermal **stratification** is related to incoming heat, water depth, and degree of water column mixing. Deep, large lakes such as the **Great Lakes** receive insufficient heat to warm the entire water column and lack adequate physical turnover or mixing of the water for uniform temperature distribution. Thus, they have an upper layer of water that is warmed by surface heating (epilimnion) and a lower layer of much colder water (hypolimnion), separated by a layer called the **thermocline** in which the temperature decreases rapidly with depth. Both daily and seasonal variations in heat input can promote thermal stratification. Stratification in summer followed by mixing in the fall is a phenomenon commonly observed in temperate lakes of moderate depths (over 33 ft [10 m]).



Thermal stratification of a deep lake. (McGraw-Hill Inc. Reproduced by permission.)