

WATER TEMPERATURE

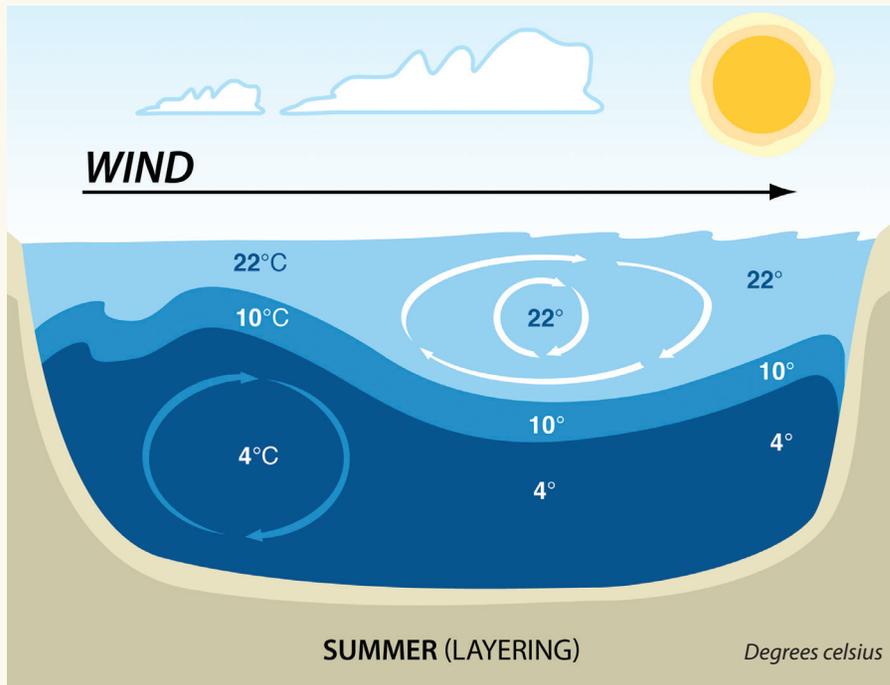


ILLUSTRATION: MICHIGAN SEA GRANT

EPILIMNION

The surface layer of water that is constantly mixed by wind and waves and is warmed by the sun, from late spring to late fall.

METALIMNION

The middle layer characterized by a steep gradient in temperature and demarcated by the regions above (epilimnion) and below (hypolimnion). The metalimnion is the barrier that prevents mixing and heat exchange between the epilimnion and hypolimnion.

HYPOLIMNION

The deepest layer of uniformly cold water that does not mix with the upper layers and has low circulation. The colder water within the hypolimnion is at its maximum density at a temperature of 39.2° F (4° C).

THERMAL STRATIFICATION

Thermal stratification is a seasonal phenomenon that occurs from late spring to late fall in temperate regions. In the summer, the upper layer of water in the Great Lakes (epilimnion) is warmed significantly by the sun. Cooler water separates, forming two additional layers (metalimnion and hypolimnion) that are heavier or denser. During the winter, there is no stratification as the lake cools, and the overall temperature of the lake is more uniform.