

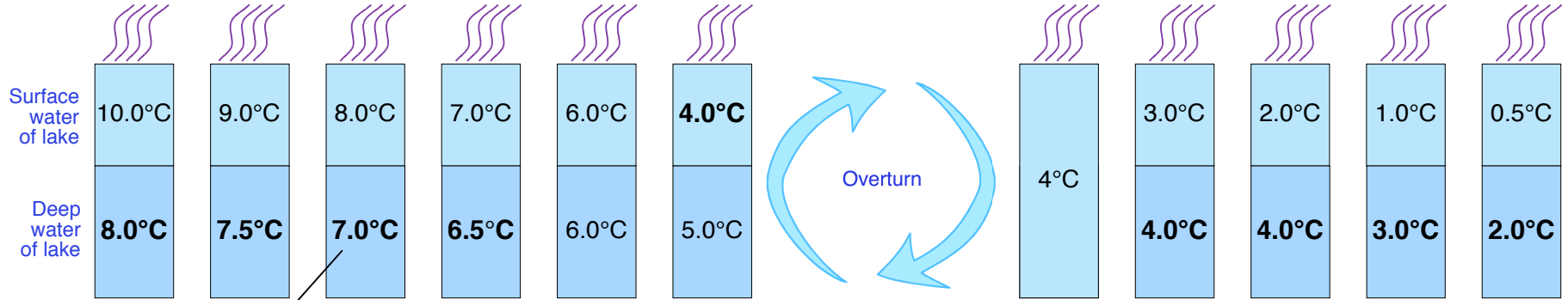
# Overturn of freshwater lakes

Freshwater (water with a salinity near zero) is most dense at 4°C, above its freezing point at 0°C. One result is that a lake can overturn as its surface water cools or

warms to 4°C, over deep water in which temperature is not changing so rapidly because the deep water has fewer avenues to gain or lose heat.

## Autumn cooling:

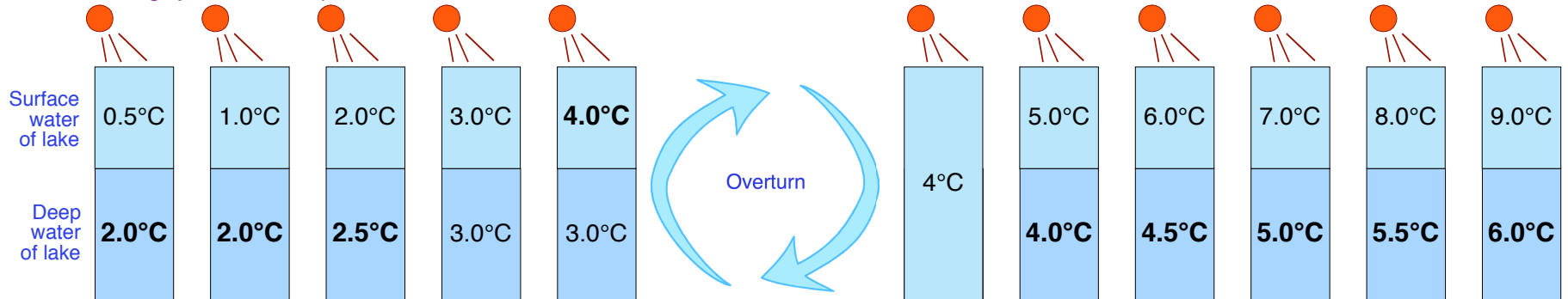
Heat transfer to cold atmosphere



The denser water, the water with temperature nearer 4.0°C, is shown in bold.

## Spring warming:

Heating by a warm atmosphere



Caveat: This document does not present data from any one lake. It is a hypothetical example constructed solely to illustrate the change of temperature possible and the resulting overturn, which is likely to be gradual and/or partial rather than catastrophic.