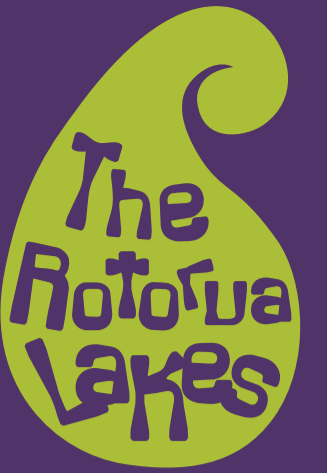


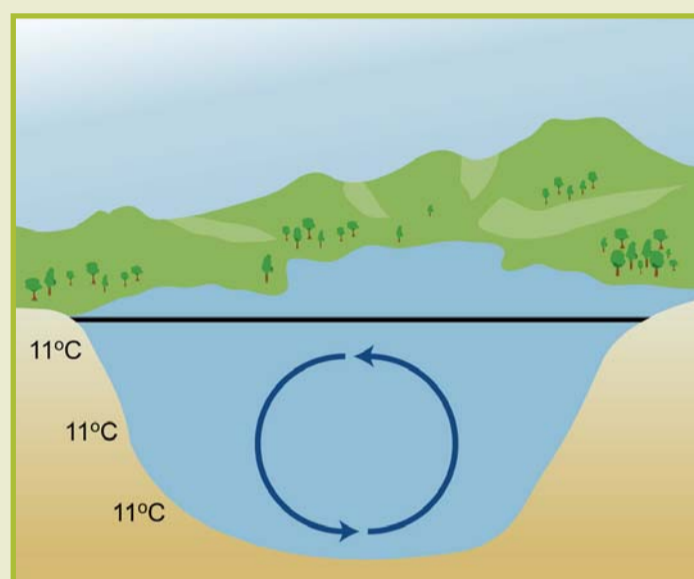
Lake processes



There is a lot going on below the surface of the water. Imagine a lake where the water is cooler at the bottom than at the top. The change in temperature from the top of the lake to the bottom is called **thermal stratification**. Big words but easy really. **Thermal** means how hot or cold something is and **stratification** means layers, just like layers of a sponge and cream cake.

In summer, the top of the lake warms up and in winter it cools down. The temperature at the bottom of the lake does not change much during the year. Check out how the lake processes change with each new season.

Winter

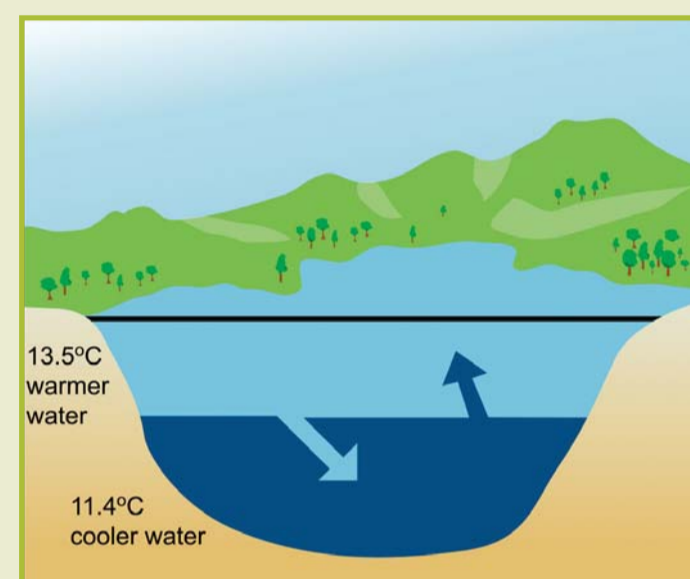


In winter the wind and waves can mix the water in the lake.

The mixing keeps the water temperature of the lake the same from top to bottom.

When a lake's water temperature is the same from top to bottom, its **water density** is the **same** from top to bottom.

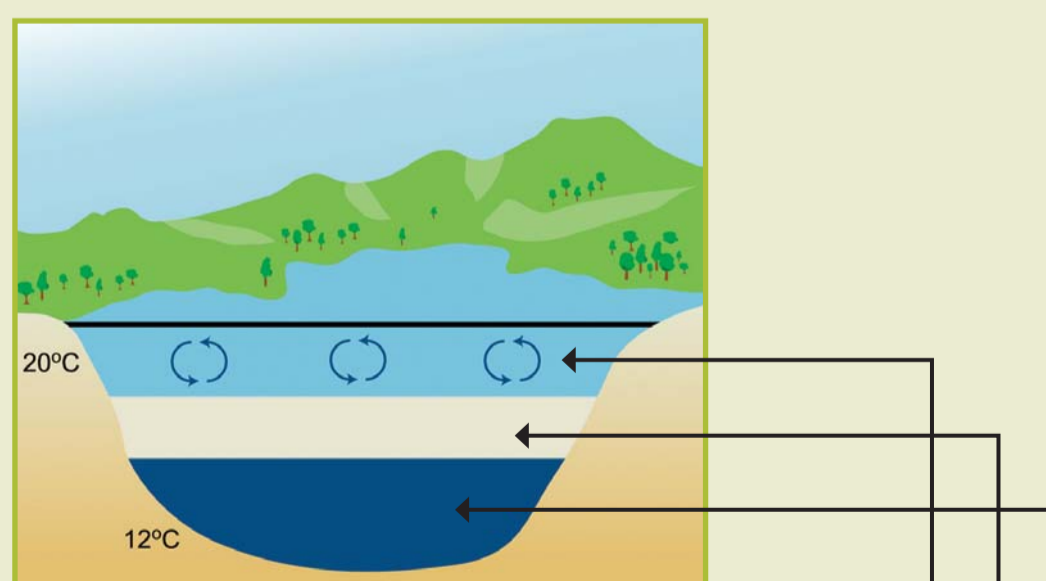
Spring



In the spring the surface water warms up and has a **lower density** than water at the bottom of the lake. The dense cold water stays below.

The different densities and the calmer weather conditions is why only a little bit of mixing occurs in the spring.

Summer



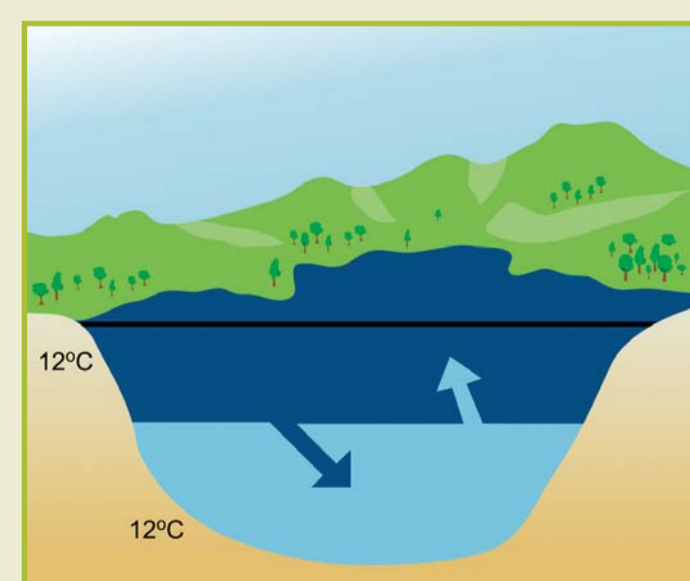
During summer there are differences in the water temperature. This causes two areas of different density separated by a middle layer called thermocline.

thermocline (stops mixing of layers, temperature decreases from top to bottom)

hypolimnion (cold **dense water** sinks below)

epilimnion (warm **low density** water)

Autumn



In autumn the surface water cools until it is the same temperature as the water at the bottom of the lake.

The thermocline disappears and the lake begins to mix again. This is called "turnover".