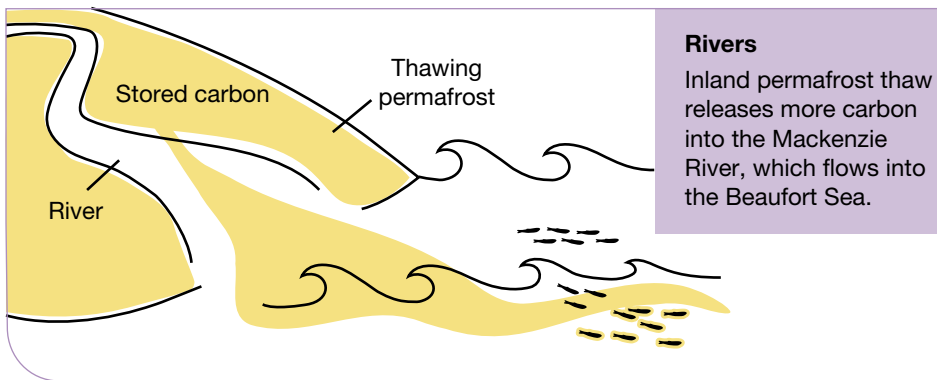
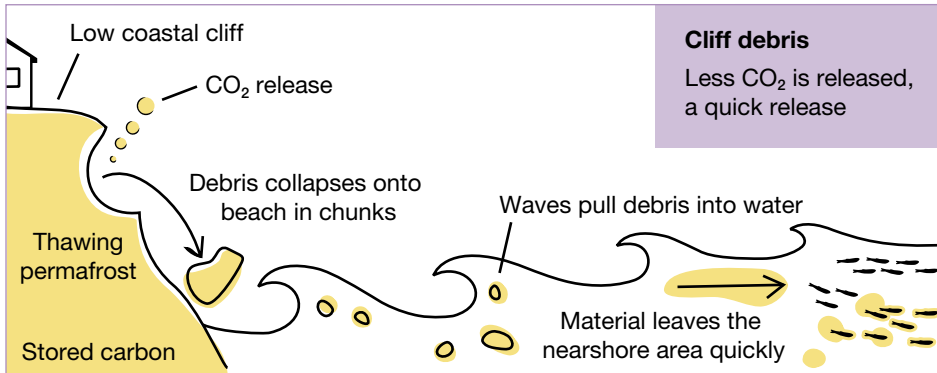
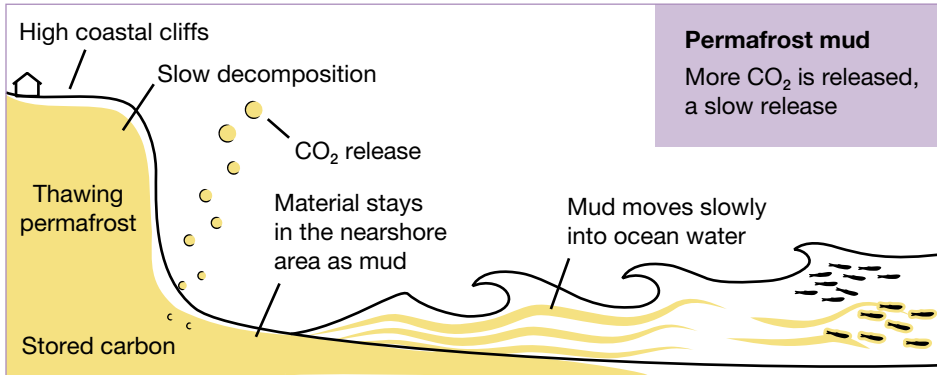


From the land: nutrients and carbon entering the ocean

Melting glaciers and thawing permafrost both provide nutrients and carbon for the ocean. Their contributions influence food webs and CO₂ exchange in different ways.

Western Arctic: nearshore permafrost thaw

Permafrost thaw is increasing, bringing more carbon to ocean waters.



Eastern Arctic: glacier meltwater entering the ocean

Glacier melt entering the ocean below the surface supplies nutrients in direct and indirect ways.



Direct

Glacier melt carries micronutrients like manganese (Mn). These nutrients can be tracked far from the glacier itself.

Indirect

Glacier meltwater rises up, carrying ocean nutrients like nitrogen (NO₃⁻) and phosphate (PO₄³⁻) to the surface. Phytoplankton can use these nutrients.

