

Groundwater in Scotland is, for the most part, weakly to moderately mineralised and dominated by the Ca and  $\text{HCO}_3$  ions. The aquifer systems are almost entirely unconfined and most groundwater remains in contact with oxygen; some reducing groundwaters occur in deeper isolated cracks and joints within the many fractured bedrock aquifers such as Devonian sandstones. Groundwater depleted in oxygen is also common in the Coal Measures in the Midland Valley as a direct result of past coal and oil shale mining, when iron and other metals are taken into solution as the abandoned mine workings are allowed to flood. Low pH groundwaters are rare but do occur where calcite is absent in some basement rocks. Marine intrusion of coastal aquifers occurs locally in East Lothian and parts of Morayshire. Deeper circulating groundwaters are responsible for some of the more exotic spa waters, notably at Bridge of Earn near Perth. Nitrate contamination of groundwater is increasing in some areas, and is most prevalent in the south of Scotland. The Devonian aquifer in Fife and parts of the Permian sandstone aquifers of south-west Scotland are the worst affected.