

Identifying lake types

A GUIDE TO IDENTIFYING DIFFERENT LAKE TYPES IN ENGLAND & THE UK



FRESHWATER
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BACKGROUND

Lakes are strongly controlled by their water chemistry and the main lake categories are based on their **natural nutrient levels**. This is sometimes referred to as their 'productivity' or 'trophic level/state'.

Further lake variation is linked to size, which is also related to depth. Deep lakes function differently from shallow ones; a greater proportion of a small water body is influenced by its riparian habitat.

The species present within a lake will also be influenced by their **catchment connectivity** (number of rivers/streams flowing in and out) and the **seasonal changes** present at each individual site.

OLIGOTROPHIC LAKES

These lakes are the **least productive** with the **lowest nutrient levels**. They are frequently found in the uplands and are characteristically clear with zones of shoreweed, water lobelia and quillwort.

The clearness of their waters is linked to a lack of nutrients that limits the growth rates of algae.

As sources of good quality water, many larger oligotrophic water bodies have artificial water control structures (e.g., dams) that enable storage and abstraction. Other pressures include nutrient enrichment, acidification, and non-native species.



MESOTROPHIC LAKES



These lakes are **moderately productive** with a **narrow range of nutrients**. They are usually found in the margins of upland areas in England and are the most botanically diverse.

Clear water and a mix of different substrates in the lake bed provide diverse habitats for a large range of organisms. They are the most botanically diverse of the main lake types.

The main threats to this habitat are eutrophication (from both point and diffuse sources), altered hydrological regimes, and invasive species.

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EUTROPHIC LAKES

These lakes are the **most productive** with **naturally high nutrient levels**. *Aglae* is naturally present and turns water green during the summer.

They support a large range of pondweeds and floating vegetation, as well as other submerged vegetation species.

Eutrophic lakes are often found in heavily populated lowland areas with highly modified features and increased nutrient enrichment from surrounding land use. This increases algal bloom frequency and reduces the number of plant species that can survive in overly nutrient-enriched waters.



DYSTROPHIC LAKES



Dystrophic lakes are characterised by their **naturally peat-stained water**. It is a condition that can affect **lakes of all nutrient levels**, but their acidic nature and poor clarity often lead to fewer submerged plant species. However, they can be biologically diverse across the range of plant functional groups.

As most dystrophic waters occur in peatlands, the pressures upon them are those which damage the integrity of peatlands as a whole, predominantly drainage of the peat body, over-grazing, and burning.

MARL LAKES

Marl lakes are a rare, widely distributed habitat type that occurs in **limestone catchments** where calcium carbonate is found in the water as marl.

They have low levels of nutrients and clear waters that make floating algae scarce, but dense charophyte beds (green algae that are structurally like plants) prevail in these lakes.

Surrounding land-use changes and nutrient inputs can decrease clarity, stop the production of marl and consequently destroy these unique habitats.

