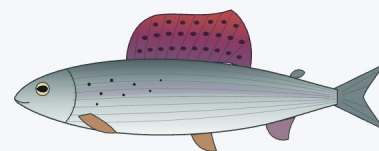




Looking after grayling

What they need, and why trout-shaped projects can miss them

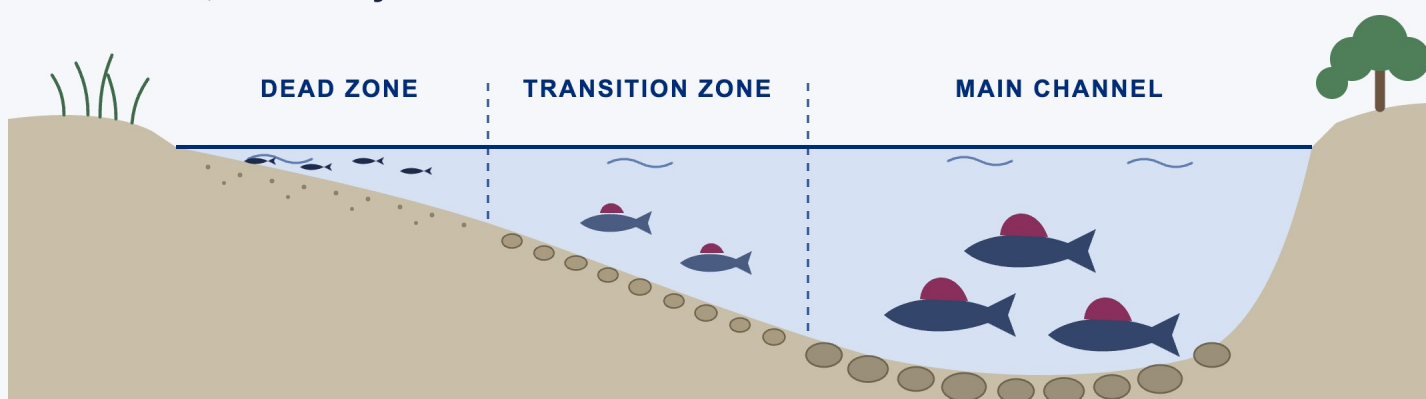
Grayling share rivers with brown trout, so they are often assumed to share its needs. They do not. This side covers what grayling need at each life stage; the reverse covers how they differ from trout and what to build into river projects.



Use grayling as your indicator species

They need cool, clean, well-oxygenated water, silt-free gravel and free passage, so they show trouble early. A healthy river holds at least four year classes. Warning signs are falling catches, missing year classes, or only big, old fish.

Three zones, one life cycle



Fry are weak swimmers. They stay near the surface in slack, shallow margins until about 25–28 mm long.

Juveniles edge out into stronger flow as they grow, holding near the bed in 45–90 cm of water.

Adults hold in 75–165 cm of water over cobble and gravel at 0.2–0.5 m/s, moving deeper in winter. At night all sizes slip into the shallows.

What grayling need, and why

NEED	AIM FOR	WHY IT MATTERS
Cool water	4–18 °C through the year, and never above 25 °C	A cold-water fish near its southern limit. In heat, grayling stop feeding and may not spawn the next spring.
Oxygen	Above 5–7 mg/l in the river; 10 mg/l or more in spawning gravel	Warm water holds less oxygen just as the fish need more. Low flow plus heat can kill outright.
Clean water	pH 6.5–9; ammonia under 0.2 mg/l; BMWP invertebrate score over 71, ideally 100+	Eggs and larvae are the weak point. In one study, no eggs placed in a sewage works plume survived to emergence.
Clean gravel	Silt-free stones of 2–8 cm, 5 cm deep or more, under 10–50 cm of water at 23–92 cm/s	Eggs lie on or just under the surface, not in a deep redd, so silt smothers them and a spring spate can wash them out.
Free passage	Open river upstream and downstream, for every size of fish	Each life stage needs a different zone within reach. Adults may run 11 km to spawn; fry drift several kilometres downstream at night.
Steady flow	Stable flows from spawning to emergence, March to June; depth and current in summer	High flows during incubation and emergence can remove a whole year class. Low summer flows concentrate heat and pollution.

Climate: the 2050 outlook

Share of England and Wales modelled as highly suitable for grayling



The fall to 7% holds under both low and high emissions scenarios. But water chemistry explained 37% of the habitat model, against 51% for climate. Holding orthophosphate to 0.15 mg/l, nitrite to 0.02 mg/l and copper to 2 µg/l would improve the habitat class of up to 14% of the area today, and 6–10% of it in 2050. Grayling in poorer habitat also showed more inbreeding at immune genes. **Pollution control buys climate resilience.**