

# BU MATCH FUNDED STUDENTSHIPS 2024



PROJECT TITLE

**Predicting the roles of anadromy and freshwater carry-over effects in the sustainability of threatened brown trout *Salmo trutta* populations**

PROJECT SUMMARY

## **Rationale**

Our ability to live sustainably with the natural world is dependent on how we derive societal benefits from freshwater ecosystems, including the provision of fresh water, food and energy. Currently, our derivation of these benefits is increasingly recognised as unsustainable; provision of freshwater for drinking and industry results in drying rivers; food supplies either over-exploit wild fish stocks leading to collapse or rely on aquaculture activities that pollute surrounding waters; and energy production transforms aquatic environments through loss of river connectivity. These activities are driving major and unsustainable declines in freshwater biodiversity, with population reductions of over 80% since the 1970s.

These freshwater biodiversity declines are most apparent in species with complex lifecycles, especially diadromous fishes (lifecycles involving movements between freshwater and marine environments), with all 16 European mid- and long-distance migratory fishes suffering substantial population declines in recent decades (by up to 93%). Returning populations of these species back to sustainable levels is thus a high

implanted with passive integrated transponder (PIT) tags and their movements tracked over their lifecycle using recapture events (non-migratory fish) and PIT tag detection systems in the lower river (migratory forms, detecting smolt emigration and adult im

range, including England, are alarming and show no signs of abating. The ultimate aim of this research is, in conjunction with the match funder, other project partners (Cefas, ICES) and researchers, to create and disseminate new knowledge that will return salmonid populations back to being sustainable. The focus in this PhD is generating new knowledge of how river management can contribute to population sustainability via increasing population resilience through developing stronger, more beneficial carry-over from freshwater into marine life-stages, and so, ultimately, the number of adult spawners.

By working with our collaborating partners in this project, this research will thus help sustain European



	<p>populations with diverse migration strategies. <i>Freshwater Biology</i>, 66(7), pp.1410-1422.</p> <p>Winter, E.R*., <b>Britton, J.R.</b>, et al. 2021. Detection range and efficiency of acoustic telemetry receivers in a connected wetland system. <i>Hydrobiologia</i>, 848, pp.1825-1836.</p> <p>Yeldham, M.I.*., <b>Britton, J.R.</b> et al. 2023. Individual repeatability in the timing of river entry indicates the strong influence of photoperiod in the spawning migrations of iteroparous twaite shad <i>Alosa fallax</i>. <i>Hydrobiologia</i>, 850(7), pp.1619-1634.</p>
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INFORMAL ENQUIRIES
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Please contact the lead supervisor on the following email for informal enquiries: <a href="mailto:rbritton@bournemouth.ac.uk">rbritton@bournemouth.ac.uk</a> /57.541.652.16nt
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ELIGIBILITY CRITERIA
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The BU PhD and MRes Studentships are open to UK, EU and International students.

Candidates for a PhD Studentship should demonstrate outstanding qualities and be motivated to complete a PhD in 4 years and must demonstrate:

- outstanding academic potential as measured normally by either a 1st class honours degree (or equivalent Grade Point Average (GPA) or a Master's degree with distinction or equivalent
- an IELTS (Academic) score of 6.5 minimum (with a minimum 6.0 in each component, or equivalent) for candidates for whom English is not their first language and this must be evidenced at point of application.

Candidates for an MRes Studentship should demonstrate outstanding qualities and be motivated to complete a MRes in 18 months and must demonstrate:

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