

**MSc project in ecophysiology**

# **Thermal vulnerability of the early life stages of Atlantic salmon**

Different life stages within species may vary in their vulnerability to climate change related heatwaves due to physiological differences and exposure to different thermal extremes in the natural environment.

The MSc student will plan and conduct temperature tolerance experiments on early life stages of salmon at Luke Laukaa fish hatchery as part of Research Council of Finland -funded project on evolutionary physiology of salmon.

**Research questions:**

**What are the upper thermal limits of the early life stages of Atlantic salmon?**

**Are embryos more vulnerable to warming compared to later life stages?**

**Supervisors:**

Dr. Zara-Louise Cowan (Luke), [zara-louise.cowan@luke.fi](mailto:zara-louise.cowan@luke.fi)  
Dr. Jenni Prokkola (Luke), [jenni.prokkola@luke.fi](mailto:jenni.prokkola@luke.fi)

**To apply, please contact supervisors as soon as possible, by February 9th 2024 at latest.**

**Relevant literature:**

Cowan et al. A novel method for measuring acute thermal tolerance in fish embryos, *Conservation Physiology*, 2023, 11: coad061.