MSc Project
- Effects of warming on fish growth and body size

Thesis work in Biology or Environmental Science at the Department of aquatic resources SLU, 15-60 cp

Research questions: The world is getting warmer and ectothermic species such as fish are predicted to spawn earlier[1], grow faster, and reach smaller adult body sizes[2, 3]. Numerous studies have found empirical support for faster growth rates in natural systems[4, 5] (inferred from larger size-at-age). However, it remains to be seen whether increases in size-at-age are purely due to faster growth rates, or because earlier spawning times give fish a head start in the race to be larger.

In other words: what are the relative contributions of temperature-dependent growth and earlier spawning times (and longer growing seasons) for explaining patterns in fish growth and size in relation to climate change?

Tasks: In this project, you will work with an exceptionally unique Biotest system (which contains long time series of fish growth taken from lakes with large differences in temperature). You will parameterise an existing R-based Individual Based Growth Model (IBM) for perch (*Perca fluviatilis*) and use it as a basis to quantify how changes in spawning times and temperature dependent growth describe empirical patterns.

What you will learn: Key skills for ecologists, including R-programming for performing data-analysis, data visualisation, and simulations following good practices for reproducible science.

Prerequisites: Familiarity with R and statistical/quantitative concepts for applied ecology is a merit. However, we offer a supportive environment with dedicated supervisors and firmly believe that any motivated student can take on this project and succeed.

Location: SLU Aqua in Lysekil, or work can be conducted remotely.

Please do not hesitate to reach out for more information!
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