

Long-term changes in marine growth and relationships with life history strategies in Atlantic salmon *Salmo salar*

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Abstract:

The recent decline in abundance of anadromous migratory fish populations (Atlantic salmon and sea trout) and their changes in life history strategies (age and size at maturity) may partly result from a response to changes in the marine ecosystem, leading to changes in the biotic or abiotic environment of fish during marine migration. My PhD aims at analyzing spatio-temporal and inter-individual variability of growth during the marine phase. Specifically, I test the hypothesis that (i) the probability to mature after only one year at sea, one key life history trait of Atlantic salmon, depends on growth conditions during the first summer and the first winter at sea; (ii) that the relationship between growth and maturation is sex dependent. I will analyze data from historical collection of salmon scales from 5 index rivers (Scorff, Oir, Bresle, Frome and Tamar) in the Channel covering 10 to 30 years of monitoring per river. The first results focus on inter-circuli spacing on Atlantic salmon scales collected in the Scorff river between 1987 and 2017. The PhD is funded by the European SAMARCH project (Interreg FMA programme, www.samarch.org) that aims to improve the scientific expertise and the effectiveness of management measures for migratory salmonids in the Channel area. My results will feed recommendations to improve stock assessment models used by managers and policy makers concerning salmonids populations.