

SCIENTIFIC REPORT	
Reference	Short Term Scientific Mission COST FA1304
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Host Researcher	Dr. Ir. Arjan P. Palstra IMARES Wageningen UR arjan.palstra@wur.nl
Period	from 16/05/2015 to 21/06/2015
STSM Reference Code	STSM-FA1304-160515-060569
STSM Title	The effects of abrupt temperature variation on the swimming physiology of Atlantic salmon

Summary

Visiting IMARES: when riverine ecology met fish physiology

The main objective of the work developed during this STSM was to study the changes in the swimming physiology of a salmonid species, the Atlantic salmon (*Salmo salar* L.), as caused by the abrupt variation of temperature that usually occurs with hydroelectric dams operation. The Intermittent flow respirometry technique was used to compare the metabolic rates of oxygen consumption before, during and after abrupt temperature variation. The STSM was developed between May and June 2015, at IMARES in Yerseke, Netherlands, and supervised by Dr. Arjan Palstra. A set of control (no temperature variation) and experimental (temperature variation of approximately 4°C) were conducted in order to answer the following questions: i) quantify the metabolic change associated with abrupt temperature decrease, and (ii) assess if and how much time the tested fish take to resume previous physiological condition. Main results obtained reveal that this particular species shows a strong response to this type of sudden temperature variation, significantly reducing the respective rate of oxygen consumption, but at the same time it shows a high resilience to this particular pressure, quickly recovering from previous swimming costs after reestablishment of initial temperature values. This STSM successfully reached the main objectives initially defined, allowing to test the respirometry method that is planned to be used in the future if a project proposal currently in evaluation gets funded and, at the same time, providing swimming performance data that can be compared with the same type of data for other freshwater fish species.



Figure 1. The STSM beneficiary, Carlos Manuel Alexandre, with the respective host researcher, Dr. Ir. Arjan P. Palstra, at IMARES facilities in Yerseke, The Netherlands.