FISH LIVING IN A REGULATED RIVER WITH HYDRO-PEAKING OPERATIONS HAVE BETTER SWIMMING STRESS RESPONSES

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A field study on consequences of chronic flow increments on fish swimming stress response has been conducted in a context of natural flow regime alteration. The level of physiological stress to a sudden increase in flow velocity has been assessed in a comparative study on Northern pikes(*Esox lucius*). Besides, to ensure that differences that could be seen were not due to an impaired stress response by fish living in the regulated river, an experiment on the degree of stress response and muscular fatigue after a standardized angling procedure has been conducted. The study took place in a hydro-peaking river, where events of massive and unpredictable flow discharge happen daily. A total of 58 fish were caught in Mississagi River, regulated, and Aubinadong River, unregulated, both situated in Northern Ontario. Indicators of the general response to stress along with blood lactate have been quantified on both experiments. Results show that the blood lactate concentrations of fish subjected to a fast increase in flow velocity were significantly higher in individuals living in the unregulated river. On the other hand, the acute stress response and the muscular anaerobic capacities are not impaired by a fluctuating flow environment in wild fish. These experiments tend to show that an increase in flow velocity stressed the fish the same way, independently of the river in which they live. The muscular fatigue, however, seems to be lower in fish habituated to a frequent increase in river flow.