



## **Graduate Opportunities in Fish Physiology in the Dept. of Ocean Sciences, Memorial University**

The Ocean Sciences Centre (where the Dept. of Ocean Sciences is located) is one of Canada's, premier marine labs, and specializes in research on cold-water marine species and processes, including aquaculture (see <http://www.mun.ca/osc/>).

At the Ocean Sciences Centre, we are working on various aspects of Atlantic Salmon and sablefish environmental biology/physiology, aquaculture and welfare, and currently have positions open for M.Sc. and Ph.D. students within NSERC Discovery, Ocean Frontier Institute and 'Mitigating The Impact of Climate-Related Challenges on Atlantic Salmon' research programs. These individuals will work in collaboration with our industrial partners, and as a member of a large interdisciplinary research team to examine the effects of changes in water temperature and oxygen levels (hypoxia) on these two species.

*Specific research areas include:*

1. The cardiorespiratory physiology of salmon and sablefish, as assessed using a variety of approaches including telemetry, whole animal respirometry, high-resolution (Oroboros) respirometry, *in vivo* and *in situ* cardiac function, biochemical assays and functional genomics etc.
2. Salmon / sablefish stress physiology and immune function, as assessed using various approaches including functional genomics (i.e., RNA-seq; QPCR etc.), protein assays (ELISA's), *in vitro* assays etc.
3. The identification and validation of molecular biomarkers of immune robustness and tolerance to environmental stress.

Experience in fish research, aquaculture, and some of the areas listed above would be preferable. However, training will be provided in the techniques required for particular projects. Stipends for M.Sc. and Ph.D. students are approx. \$21,500, and positions are available for Sept. 2018 or earlier.

For further information about aspects of these graduate positions, please contact Dr. Kurt Gamperl (709-864-2692; [kgamperl@mun.ca](mailto:kgamperl@mun.ca)).