



Two New PhD Positions Starting Fall 2025

An Epigenetic Clock to Estimate the Age of St. Lawrence Belugas and Its Impact on Contaminant Accumulation, Stress, and Health in This Endangered Population

Project Summary:

The St. Lawrence Estuary (SLE) beluga (*Delphinapterus leucas*) in Québec (Canada) inhabits a marine ecosystem heavily impacted by human activities and has shown no signs of recovery in recent decades. Exposure to contaminants is suspected to contribute to some increasing causes of mortality in recent years in this population—such as infectious diseases and postpartum mortality in females—but the exact causes remain unknown (e.g., stress, immunosuppression, endocrine disruption, poor condition, etc.). A major limitation in assessing the health of individuals in this population in relation to contaminant exposure is the lack of a method to determine the age of living SLE belugas.

The goal of this interdisciplinary project is to understand the impact of age on contaminant exposure, stress, and health status of SLE belugas using cutting-edge omics and epigenetic approaches. We will validate a novel method to determine age (epigenetic clock) in belugas and investigate the role of age in contaminant accumulation and transcriptomic markers of stress and health (immune and hormonal status, physical condition, presence of infectious diseases), by comparing the SLE population to a healthier population of Canadian Arctic belugas. This project will address fundamental research questions never before explored in belugas, ultimately informing improved conservation strategies to help this endangered population recover.

Two PhD positions are offered as part of this call: one based in **Montréal, Canada**, and the other in **Namur, Belgium**. This project is a collaboration between UQAM (Prof. Jonathan Verreault), Université de Montréal (Prof. Stéphane Lair), Université de Namur (Profs. Frédéric Silvestre and Alice Dennis), Université de Liège (Prof. Krishna Das), Environment and Climate Change Canada (Dr. Magali Houde), GREMM (Robert Michaud), and Fisheries and Oceans Canada (Dr. Véronique Lesage).

Additional Information:

- Doctoral scholarship provided for a 4-year period. Includes fieldwork and lab work.
- **Requirements:** B.Sc. and/or M.Sc. in biochemistry, biology, or a related field; strong proficiency in **English and/or French** (proficiency in French is an asset); primary residence in **Montréal (Québec, Canada)** or **Namur (Belgium)** for the full duration of the project.
- **Assets:** Experience in molecular biology, ecotoxicology, marine mammal biology, and bioinformatics (e.g., omics data analysis).

To apply, send your CV and transcripts (B.Sc. and M.Sc.) by **September 1st, 2025** to:

For the position at Montréal:

Jonathan Verreault
Dép. des sciences biologiques
Université du Québec à Montréal
email: verreault.jonathan@uqam.ca



For the position at Namur:

Frédéric Silvestre
Dép. de biologie
Université de Namur
email: frederic.silvestre@unamur.be

