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RESEARCH PROJECT ON CLIMATE CHANGE

WILL FISH IN NORTHERN QUEBEC SURVIVE CLIMATE CHANGE ?

CONTEXT

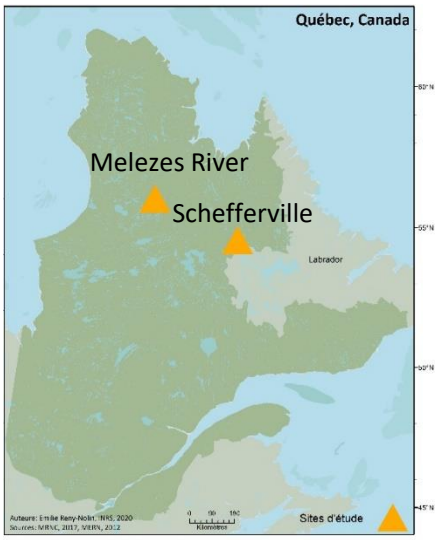
Mining operations in Northern Quebec can lead to the contamination of rivers, **affecting the fish** populations living there. Knowing that climate change has also begun to **affect rivers** in Northern Quebec, what does the future hold for these particularly vulnerable fish populations? **Could global warming exacerbate the effects of mining activities on fish?** No one can predict it, but researcher André St-Hilaire and his doctoral student Eisinhower Rincon will paint the best possible picture.

Aquatic resources are a priority for northern communities that have been caring for their homeland for millennia. There is therefore an urgent need to study past, present and future temperature variations in the rivers of Northern Quebec in order to **understand how fish will evolve in the context of climate change**. These data will help ensure the **sustainability** of these resources.

PROJECT OBJECTIVES

- Understand past, present and simulate possible future **temperature variations in Northern Quebec rivers**.
- Analyze the **impacts of climate change on northern fish populations** in light of their known temperature tolerances.

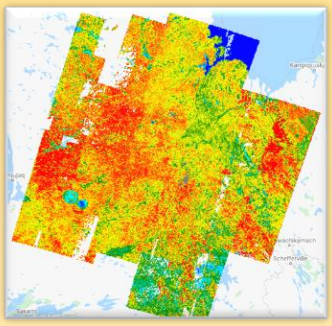
STUDY SITES



STEPS

How can we study the impacts of climate change on fish populations in Northern Quebec? First of all, by building a **database of water temperatures** of the studied rivers using thermal satellite imaging and thermographs.

Thermograph (3 x 5 cm)



Thermal satellite imaging

This database is then used to calibrate a **hydro-thermal model**. Using **climate change scenarios** as inputs, the model will be used to investigate possible **future temperature regimes**.

Then, André St-Hilaire and Eisinhower Rincon will analyze the results to determine the frequency and duration of **exceedance of known thermal thresholds for river water temperatures** between now and 2100. These exceedances will make it possible to assess the extent of the impacts of climate change on fish populations in northern Quebec.

André St-Hilaire
Professor

Eisinhower Rincon
PhD student

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