ADVERTISEMENT FOR POSTDOCTORAL POSITION

Project Title	Potential changes in biological characteristics of juvenile Atlantic salmon (*Salmo salar*) over the past 50 years and linkages to environmental factors
Location(s)*	INRS (Quebec City, QC) / DFO Gulf Fisheries Centre (Moncton, NB)
Start Date	January 2022
Salary	$60,000/yr
Hours (Full/Part-Time)	Full-time
Contract Type	2 years fixed-term contract
Reporting to	Professor Normand Bergeron (INRS), Dr. Cindy Breau (DFO)

Remote work available

Background

The Atlantic salmon (*Salmo salar*) is an iconic species of Eastern Canada, holding extensive economic, cultural and economic value to Canadian people and First Nations communities. Abundances throughout their international range have steadily declined since the late 1980's from exposure to multiple drivers of population decline in both freshwater and marine environments. Freshwater habitats have particularly become increasingly threatened by the effects of river damming and degradation, as well as increased thermal stress events with warming water temperatures.

The Project

To further understand how freshwater conditions are influencing Atlantic salmon populations, this study will aim to identify changes in biological characteristics (e.g., size-at-age, growth) of juvenile Atlantic salmon over the past 50 years and investigate the relationships to historical freshwater environmental factors (e.g., water temperature and flow). The project will make use of an existing 50-year dataset from two index rivers of eastern North America – the Miramichi and Restigouche rivers – to address questions related to the fitness of juvenile salmon when they migrate from freshwater to the ocean.

The Role

Objectives – We are seeking a competent modeler and data scientist to take responsibility for the following project objectives:

1. Quantify and contrast the growth profiles of juvenile salmon sampled in the Miramichi and Restigouche rivers at the end of growth season (August to October) over a time series from 1970-2021.
2. Characterize the variability in growth profiles of salmon for the two rivers.
3. Investigate and select the best metrics of water temperature and flow to use as predictors of juvenile salmon size-at-age.
4. Based on the growth characteristic profiles, test hypotheses regarding the role of water temperature and flow on growth of salmon and whether these have varied and/or changed over the 50-year time series.

Deliverables – You will be expected to deliver the following during the 2-year position:

- A novel model that can be used by managers to infer growth for future flow/temperature scenarios
- Two primary peer-reviewed articles; one describing the development of suitable environmental metrics in relationship to juvenile fitness at various spatial scales, and one describing a multi-cohort juvenile growth model and how it is affected by environmental covariates
- Presentations of research findings at a Fisheries and Oceans Canada seminar series, local and national conferences, and meetings with watershed and indigenous groups
- Final report to the primary funding agency (Mitacs)

Selection Criteria

Essential	Desirable
- A PhD in a related field - Strong quantitative skills in ecological modelling - Ability to co-ordinate multiple aspects of work in order to meet deadlines - Ability to work as part of a team as well as independently - Ability to solve problems using innovative and flexible thinking - Excellent writing and communication skills in English	- Background in Atlantic salmon research - Experience in Bayesian statistics - Fluency in French is desirable but not mandatory

Benefits

- Competitive salary
- Flexible work schedule with remote-work capabilities
- Field-work opportunities
- Collaborative, open-door work environment
- As a member of the Atlantic Salmon Research Joint Venture (ASRJV), you will gain expertise from salmon science experts across Quebec, Eastern Canada, and Maine
- Information on INRS benefits to post docs: inrs.ca/en/studies/postdoctoral-fellowships/

Application

Applicants may submit their academic CV, cover letter and references to Alexis Knight at alexis.knight@nssalmon.ca by **January 21ˢᵗ, 2022.**

Accepting both Canadian and international applicants