

Postdoctoral Fellowship
Quantifying the trophic roles of Northern shrimp on the Labrador Shelf

A postdoctoral fellowship is available at the Centre for Fisheries Ecosystems Research, Fisheries and Marine Institute, Memorial University of Newfoundland (MUN), in St. John's, Canada. The successful candidate will collaborate with Drs. Tyler Eddy, Arnault Le Bris, & Jonathan Fisher from MUN and Drs. Krista Baker (Fisheries and Oceans Canada (DFO) – St. John's) and Wojciech Walkusz (DFO – Winnipeg). This postdoctoral fellowship provides exceptional collaborative research opportunities with industry partners from the Canadian Association of Prawn Producers & Northern Coalition. Travel funds are included in the fellowship.

Northern shrimp (*Pandalus borealis*) supports economically important commercial fisheries in the offshore waters of the northwest Atlantic. Northern shrimp are directly impacted by changing ocean conditions and serve as prey to a wide variety of predators. However, the environmental and food web drivers of shrimp population dynamics have been much more thoroughly characterized in their southern distribution than in the northern waters of the Labrador Shelf. This necessitates increased collaborative research to provide new data, analyses, and syntheses to resolve the trophic roles of Northern shrimp near the northern extent of their Canadian geographic distribution and how their trophic role impacts population dynamics.

We seek a postdoctoral fellow to address two related research objectives:

1. Characterize spatial and temporal variability in the diets and nutritional state of shrimp. While it is known that shrimp feed on zooplankton, it is unclear which species represent the main proportions of their diet. To adequately draw inferences from trends in the zooplankton community to any resulting population dynamics of shrimp, a clear understanding of shrimp diet composition is required. To address this research question, shrimp will be collected by industry at a range of seasons, locations, and life stages in 2022. With technician support, shrimp and diet samples will be analyzed using isotope and fatty-acid techniques. The resulting data will provide a basis to quantify variation in shrimp condition and links to diet and local environment.

2. Quantify spatial and temporal variability in predation rates on shrimp. In southern regions of the Newfoundland and Labrador Shelf, predation rates on shrimp have been resolved to an extent that predation rates are included in shrimp population dynamics projections. However, while multi-year data exist on the abundance and distribution of dominant demersal fishes, including stomach contents and muscle tissue stable isotope values, to date there has been no synthesis of these data sets that overlap completely or partly in space to address key questions of shrimp as prey. Quantifying the trophic role of shrimp within the northern Labrador Shelf ecosystem will necessitate spatial modelling to estimate predation rates on shrimp and how they vary through time. This analysis will provide a current estimate of the role of shrimp in northern Labrador food webs.

Location: The candidate will be based at the Fisheries and Marine Institute, Memorial University of Newfoundland, in St. John's, Canada. Memorial University of Newfoundland is a hub of ocean sciences located in the Province's capital. St. John's is a safe and friendly city with great historical charm, known for its hospitality, live music, a vibrant cultural life, and easy access to wilderness and a wide range of outdoor activities.

Requirements:

- PhD in Fisheries Science/Ecology, Statistics, Mathematics, Marine Ecology/Biology, Oceanography or related discipline
- Demonstrated quantitative skills in statistical modelling and/or diet analyses
- Strong writing and communication skills

Duration: September 1, 2022 – March 31, 2024

Salary: \$80K/year plus benefits

To apply: Please send a cover letter explaining your relevant experience to, and interest in, the position, and CV to Dr. Tyler Eddy tyler.eddy@mi.mun.ca. Position will remain open until filled and is subject to final approval.