



Procurement Hub – Fredericton  
301 Bishop Drive  
Fredericton, NB E3C 2M6

25 November 2022

**30003466**

**TITLE: Analysis of capelin age and otolith microchemistry.**

**1. Advance Contract Award Notice (ACAN)**

An ACAN is a public notice indicating to the supplier community that a department or agency intends to award a contract for goods, services or construction to a pre-identified supplier, thereby allowing other suppliers to signal their interest in bidding, by submitting a statement of capabilities. If no supplier submits a statement of capabilities that meets the requirements set out in the ACAN, on or before the closing date stated in the ACAN, the contracting officer may then proceed with the award to the pre-identified supplier.

**2. Definition of the requirement:**

The Department of Fisheries and Oceans has a requirement to provide analyses of capelin age and otolith microchemistry. This includes the active sharing and teaching of knowledge on capelin otolith reading with DFO staff. The transfer of skill in otolith age reading and its validation will allow DFO staff to routinely determine capelin ages every year. Results of the microchemistry analyses performed by the Contractor will be used by DFO to determine capelin natal origin and to better understand migrations between various regions in the Gulf of Saint-Lawrence and the Estuary over capelin's life history. All results and the skills gained will directly improve the capelin stock assessment.

**3. The work will involve the following:**

The Contractor will be send 1200 pairs of capelin otoliths (600 in 2022 and 600 in 2023, with an optional third year in 2024; otoliths are from larvae, juveniles and adults). The Contractor will perform the following tasks;

### **3.1 Task 1: Age determination**

**3.1.1 Task 1a:** The first otolith will be used to determine fish age.

**3.1.2 Task 1b:** The Contractor will share their age reading protocol and knowledge of otolith age reading with DFO staff during at least one day at the Contractor's work place, so that DFO will be able to independently continue age reading work in the future. The Contractor thus has to train up to two DFO employees (French being the working language) in capelin age determination and help assure they can perform this task confidently and independently in the future.

### **3.2 Task 2: Microchemistry analysis**

**3.2.1 Task 2a:** The second otolith of 450 fish per year will be used to determine the elemental fingerprint of the otolith core.

**3.2.2 Task 2b:** The second otolith of 150 fish per year will be used to determine the elemental fingerprint along the otolith transect.

### **3.3 Scope of work:**

#### **3.3.1 Expectations prior to the beginning of work**

The Contractor will first communicate with DFO on the specifics necessary to complete otolith age readings and microchemistry analyses successfully (including but not limited to the specifics of how otoliths should be mounted). Capelin (larvae, juveniles and adults) that are selected for inclusion in this project (covering various areas in the Gulf of Saint-Lawrence and the Estuary) will be analyzed in terms of their biological characteristics (length, sex, etc.) by DFO, after which otoliths will be mounted by our staff according to the Contractor's instructions and send to the Contractor's laboratory. The capelin fishery usually ends by August each year and otoliths will be send in due time.

#### **3.3.2 Objectives**

In 2022 and 2023, the first otolith of each pair should be aged according to a standard protocol that was validated in the past through a comparison with at least one other laboratory specialized in capelin age determination (objective 1a). In 2022 or potentially 2023, the Contractor should be willing to train DFO staff within their laboratory so that they can independently obtain essentially identical results (objective 1b).

In 2022 and 2023, the second otolith of each pair should be used for microchemistry analyses (objective 2). Out of each batch of 600 otoliths, 450 will be used to establish the elemental fingerprints of their core and 150 for a transect analysis. LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry) analyses should be applied to reach this goal.

The Contractor must finish the objectives within the fiscal year (February 28<sup>st</sup> 2023 for the first batch of otoliths and February 29<sup>st</sup> 2024 for the second batch of otoliths, and similar if there would be a third year).

#### **3.3.3 Deliverables**

**3.3.3.1** At the end of each contract year, an electronic database (Microsoft Excel spreadsheet or similar) with the age and microchemistry composition of the core or transect of all otoliths should be provided.

**3.3.3.2** At the end of the contract period (1, 2 or 3 years), a written account outlining the work completed and documenting methodology must be provided. The Contractor will be expected to provide his expertise in the interpretation of results.

**3.3.3.3** A DFO technician trained in capelin age reading according to the protocol established and validated by the Contractor.

#### **4. Applicability of the trade agreement(s) to the procurement**

This procurement is subject to the following trade agreement(s):

- *Canada-Korea Free Trade Agreement*
- *Canadian Free Trade Agreement*
- *Canada-Chile Free Trade Agreement*
- *Canada-Columbia Free Trade Agreement*
- *Canada-Honduras Free Trade Agreement*
- *Canada-Panama Free Trade Agreement*

#### **5. Criteria for assessment of the Statement of Capabilities (Minimum Essential Requirements)**

Any interested supplier must demonstrate by way of a statement of capabilities that it meets the following requirements:

- **Experience:**
  - The Contractor must demonstrate its capacity to analyze the elemental fingerprints of 600 capelin otoliths (larvae, juveniles and adults) annually and will be requested to perform microchemistry analyses of 450 otolith cores and of 150 transects. To do so the contractor must provide a list of the five most recent otolith microchemistry projects, including a description that includes but is not limited to the target species, its life stages and spatial scope, the quantity of otoliths analyzed, the general methodology applied (e.g., cores vs transects, tools), project duration, name of the client, and if available any papers or reports resulting from this.
  - The Contractor must demonstrate by providing a C.V. that they have a minimum of 10 years' experience in conducting trace element concentration analyses.
  - The Contractor must demonstrate by providing a C.V. that they have a minimum of 2 years' experience with capelin otolith reading and must have a protocol in place to determine capelin ages. The protocol can either be provided as part of the submission or a written statement can be given that includes a description of how the age reading protocol was validated (e.g., comparison with another institute) and that demonstrates that capelin ages are frequently determined (e.g., presence of a database, publications).
  - The Contractor must be able to communicate efficiently in French (advanced) and English (intermediate).

## **6. Justification for the Pre-Identified Supplier**

Age determination of capelin is not straightforward and there are very few laboratories within Canada that have this capacity. The possibility to perform otolith age readings in-house at IML (Institute Maurice Lamontagne) does not exist because of a lack of knowledge and experience, despite that the fishery samples underlying the stock assessment are analyzed here. Part of this project therefore aims at acquiring this competence at IML, so that in the future age readings can be done locally each year, which would result in the creation of a database of capelin ages, essential to improve the stock assessment. The contractor is therefore asked to perform age readings of 600 otoliths in 2022 (and another 600 in 2023 through an extension of the contract) AND to train our staff so that they can confidently and independently read capelin otoliths in the future. This would include collaboration between the Contractor and DFO to validate and compare age readings from our staff. On-site collaboration is therefore essential. The laboratory of Dr. Prof. Pascal Sirois at the University of Quebec at Chicoutimi (UQAC) has a well-developed capelin age reading protocol that was established after close collaboration and validation with DFO in Newfoundland. The laboratory at UQAC is French-speaking (essential for the transfer of information) and in geographic proximity (reducing traveling costs for DFO).

The second part of the contract concerns otolith microchemistry analyses. Other laboratories within Canada offer this service. There are however no other laboratories that do so in addition to the first requirement (capelin age reading and teaching). Further, the team of Dr. Prof. Pascal Sirois is prominent in the field of otolith microchemistry and even has years of experience specifically to capelin. Because of their leadership in otolith microchemistry, DFO also has a long-standing history with his laboratory.

## **7. Government Contracts Regulations Exception(s)**

The following exception(s) to the *Government Contracts Regulations* is (are) invoked for this procurement under subsection 6 (d) only one person is capable of performing the work.

## **8. Ownership of Intellectual Property**

Canada intends to retain ownership of any Foreground Intellectual Property arising out of the proposed contract on the basis that the main purpose of the contract is for the delivery of a report and to generate knowledge and information for public dissemination.

## **9. Period of the proposed contract or delivery date**

The proposed contract is for a period of 4 months, from date of contract award to March 31<sup>st</sup>, 2023. Two one-year option periods. Option period one, from April 1<sup>st</sup>, 2023 to March 31<sup>st</sup>, 2024. Option period two, from April 1<sup>st</sup>, 2024 to March 31<sup>st</sup>,

## **10. Cost estimate of the proposed contract:**

The estimated value of the contract, including option(s), is \$90,000.00 CAD x (GST/HST extra).

## **11. Name and address of the pre-identified supplier:**

Pascal Sirois, 555 Boulevard de l'Université, Chicoutimi, QC, G7H 2B1

**12. Suppliers' right to submit a statement of capabilities**

Suppliers who consider themselves fully qualified and available to provide the goods, services or construction services described in the ACAN may submit a statement of capabilities in writing to the contact person identified in this notice on or before the closing date of this notice. The statement of capabilities must clearly demonstrate how the supplier meets the advertised requirements.

**13. Closing date for a submission of a statement of capabilities**

The closing date and time for accepting statements of capabilities is December 13<sup>th</sup>, 2022 at 2:00 p.m AST

**14. Inquiries and submission of statements of capabilities**

Inquiries and statements of capabilities are to be directed to:

Marie-Carmen Sedji – Contracting Officer  
301 Bishop Drive Fredericton, NB E3C 2M6.  
Telephone:506-478-7358  
Email: [DFOtenders-soumissionsMPO@dfo-mpo.gc.ca](mailto:DFOtenders-soumissionsMPO@dfo-mpo.gc.ca)