

INTERNATIONAL COMMISSION FOR THE  
CONSERVATION OF ATLANTIC TUNAS



COMMISSION INTERNATIONALE POUR LA  
CONSERVATION DES THONIDES DE L'ATLANTIQUE

COMISION INTERNACIONAL PARA LA  
CONSERVACION DEL ATUN ATLANTICO

Madrid, 17 January 2023

## ICCAT GBYP CIRCULAR # G-0059/2023

**SUBJECT: CALL FOR TENDERS ICCAT GBYP 02/2023 – PILOT STUDY ON EPIGENETIC AGEING TECHNIQUE FOR AGE ESTIMATION OF ATLANTIC BLUEFIN TUNA - ATLANTIC-WIDE RESEARCH PROGRAMME FOR BLUEFIN TUNA (ICCAT GBYP – PHASE 12)**

I should like to transmit the Call for Tenders ICCAT-GBYP 02/2023 – Pilot Study on Epigenetic Ageing Technique for Age Estimation of Atlantic Bluefin Tuna - Atlantic-Wide Research Programme for Bluefin Tuna.

I would be grateful if you could distribute this Call for Tenders to qualified people and institutions that might be interested.

Please accept the assurances of my highest consideration

*P.O. Executive Secretary*

Miguel Neves dos Santos  
*Assistant Executive Secretary*

**DISTRIBUTION:**

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**Attachment:** Call for Tenders ICCAT-GBYP 02/2023.



**CALL FOR TENDERS ICCAT GBYP 02/2023  
PILOT STUDY ON EPIGENETIC AGEING TECHNIQUE FOR AGE  
ESTIMATION OF ATLANTIC BLUEFIN TUNA**

**ATLANTIC-WIDE RESEARCH PROGRAMME FOR BLUEFIN TUNA  
(ICCAT GBYP – PHASE 12)**

**a) Background and objectives**

One of the main objectives of the ICCAT GBYP is to improve the understanding of key biological and ecological processes for Atlantic bluefin tuna, with the final aim of optimising the management of this important resource. Key tasks are to reduce uncertainty in stock assessment and in the models that constitute the basis for the implementation of the Management Strategies Evaluation approach (MSE), in order to provide a robust management advice. Since the most data used for these purposes are fisheries-dependent, it is important to find alternative data sources, in order to verify the basic assumptions made when conducting assessments and MSE.

The Close-Kin Mark-Recapture (CKMR) approach is a method that uses a frequency of closely related relatives in a sample to estimate abundance and other vital rates of population. It provides an estimate of the absolute biomass or trend in biomass, which can be directly used in stock assessment or as harvest control rule. Nevertheless, this method has not yet been tested on Eastern Atlantic Bluefin Tuna (E-ABFT). The ICCAT SCRS is still evaluating the financial, logistic and scientific feasibility of implementing the CKMR method for E-ABFT stock.

One of the main issues that could prevent the implementation of CKMR is the high cost of age determination by means of classic sclerochronological methods. A potential solution would be the DNA methylation-based epigenetic ageing method, which has shown promising result in other commercial fish species. Yet, obtained age estimates may have quite high error margins compared to otolith derived ages. Therefore, ICCAT GBYP wishes to carry out the pilot study to evaluate the potential of using the epigenetics for ageing Atlantic Bluefin Tuna individuals. The aim is to evaluate both the accuracy and the feasibility of the epigenetic method compared to direct ageing.

Given the importance of this task, at its meeting held in September 2022, the GBYP Steering Committee recommended to cover the cost of such a pilot study by GBYP Phase 12, even if it implies reallocating funds dedicated to other activities.

Consequently, this Call for tenders is launched, for public or private entities, be it scientific institutions or interested companies, for the submission of the proposals to carry out the project, detailed in the following paragraphs.

**b) Contractor tasks**

The contractor will perform a pilot study on epigenetic ageing technique (DNA methylation-based analysis) for age estimation of Atlantic bluefin tuna, according with the following terms of reference:

- The aim of the pilot study will be to evaluate the accuracy of the epigenetic clock in comparison with direct age readings. Precision vs costs must also be considered in this comparison.
- At least 500 samples of Atlantic bluefin tuna specimens (250 from each management areas, West vs East Atlantic plus Mediterranean Sea) will be analyzed. In these 250 samples for each management area, the entire age range should be represented, with at least approximately 10 specimens by age class. Samples used for testing the epigenetic clock should include individuals of both sexes. Specimens captured in West or East Atlantic management areas should cover all possible geographical locations. Most of the samples caught in the East area should come from the Mediterranean.



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- The genetic origin of each sample must be accredited for those samples for which genetic origin has not been previously assigned in.
- Muscle samples from specimens will be provided to the analytical team from the GBYP and other laboratories tissue banks. Sample metadata to include sex, location and date of sampling, gear and sampling lab will be provided to the analytical team. Direct ageing by means of schlerochronological methods will also be provided based on standard and validated protocols.
- In order to reduce costs and meet the deadlines for the pilot study, samples of specimens with genetic origin already assigned and/or whose otoliths have been previously read (with high reading confidence) should be favored.

### c) Deliverables

- #1 Draft final report** shall be submitted at the latest by **13 March 2023**, containing the full description of the work carried out, a detailed description of the methodology and detailed tables showing the results of the analysis (comparison with direct ageing predictions, error margins, etc.).
- #2 Final report**, including the definitive version of the report detailed in the previous point, prepared taking into account any comment provided by ICCAT, shall be submitted by **20 March 2023**.

### d) Contractor minimum qualifications

- Excellent working knowledge of one of the three official languages of ICCAT (English, French and Spanish). A high level of knowledge of English is highly desirable.
- Demonstrated expertise in epigenetic ageing, with direct experience with calibration of age prediction models for tunas.
- Demonstrated expertise and experience in direct ageing of Atlantic bluefin tuna otoliths and ageing methods.
- Experience in the permits and accreditations required for the transfer of fish tissues for scientific research will be an asset.

### e) Request for bids

Interested entities should submit an offer to the ICCAT Executive Secretary ([camille.manel@iccat.int](mailto:camille.manel@iccat.int)), with copy to Ms. Ana Martinez ([ana.martinez@iccat.int](mailto:ana.martinez@iccat.int)) by **7 February 2023**, including:

- a) The detailed offer with a description of methodology to be used;
- b) The curricula of the scientific staff;
- c) A short presentation of the entity responding to this Call for Tenders including any documented experience in the field (see D – Contractor minimum qualifications);
- d) Detailed budget proposal;
- e) Name, address, and telephone number of the tendering body;
- f) Institutional and administrative background of the tendering body (e.g., statutes, type of institution, annual budget, budget control procedures, etc.), if applicable;
- g) Acknowledgement of this Call for Tenders; and
- h) Statement specifying the extent of agreement with all terms, conditions, and provisions herein included.

Offers sent after the deadline or that fail to furnish the required documentation or information or reject the terms and conditions of the Call for Tenders will not be considered.

The ICCAT Secretariat will make a selection of the offers and will decide to which entity the contract should be awarded.



### **Duration of the contract**

The work under this contract shall be concluded by **20 March 2023**. If required, the contract is open for extension, depending on funding availability and on the priorities of the ICCAT MSE process for Atlantic bluefin tuna.

### **Payment details**

Disbursements will be made according to the following schedule:

1. 50% of the total amount of the contract upon **signing of the contract**;
2. 50% after the approval of the final report (**Deliverable #2**) upon incorporation of comments by ICCAT GBYP.

### **Logistics**

The text report shall be in MS Word or compatible software, tables must be in Excel format or compatible, figures and pictures must be in JPEG or TIFF format or compatible. All documents submitted must be in English, French or Spanish.

### **Copyright**

All of the material produced by the Contractor will remain the property of GBYP and it must be kept confidential.

For further information concerning this Call for Tenders, please contact the GBYP Coordinator at the following address: [francisco.alemany@iccat.int](mailto:francisco.alemany@iccat.int).