INTERNATIONAL COMMISSION FOR THE
CONSERVATION OF ATLANTIC TUNAS

COMMISSION INTERNATIONALE POUR LA
CONSERVATION DES THONIDES DE L'ATLANTIQUE

ICCAT   CICTA   CICAA

COMISIÓN INTERNACIONAL PARA LA
CONSERVACIÓN DEL ATÚN ATLÁNTICO

GBYP - ICCAT
SALIDA
Nº 1580
FECHA 29 NOV. 2016

Madrid, 29 November 2016

ICCAT GBYP CIRCULAR # 1580/16

SUBJECT: **CALL FOR TENDERS – ICCAT GBYP 12/2016
SHORT TRAINING COURSE ON VPA FOR ATLANTIC BLUEFIN TUNA
MODELLING APPROACHES (ICCAT GBYP Phase 6)**

I have the honour to transmit to you the attached Call for Tenders **ICCAT GBYP 12/2016** for the "**Short Training Course on VPA for Atlantic bluefin tuna – Modelling Approaches, ICCAT GBYP Phase 6**".

Please accept the assurances of my highest consideration.

Driss Meski
Executive Secretary

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Attachment: Call for Tenders ICCAT GBYP 12/2016.

CALL FOR TENDERS – ICCAT GBYP 12/2016

SHORT TRAINING COURSE ON VPA FOR ATLANTIC BLUEFIN TUNA

-MODELLING APPROACHES-

ATLANTIC-WIDE RESEARCH PROGRAMME ON BLUEFIN TUNA
(ICCAT/GBYP Phase 6 - 2016)

Background and objectives

The comprehensive ICCAT Atlantic-Wide Research Programme on Bluefin Tuna (ICCAT GBYP), among other items, is required to work for improving the current modelling capacities for stock assessment.

The SCRS recommended a Workshop for building modelling capacities and the GBYP Steering Committee recommended this to be pursued by a short training course on VPA for Atlantic Bluefin tuna. The title of the short training course is the following:

Virtual Population Analysis – Theory and Application to Atlantic Bluefin Tuna

Candidates can be individual scientists having the required qualifications.

Brief description of the Training Course

The course will begin with a review of the mathematical theory behind tuned virtual population analysis, the calculation of biological reference points, and forecasting the abundance of the stock under different catch quotas and model assumptions. Participants will then operate in teams in a workshop environment similar to an actual bluefin tuna stock assessment where they will prepare for the 2017 assessment by conducting their own analyses using the VPA-2BOX and PRO-2BOX software, and prepare a summary of the proposed management advice. Techniques for modelling two intermixing stocks will also be discussed as time permits. The agenda may change depending on the expertise of attendees.

The training course will be held in Miami (USA) from **6 to 10 February 2017**.

Requisites of the candidates:

- University degree in one of the following: Fisheries/Marine Biology/Environmental Sciences or Statistics or closely related fields.
- Course work in: undergraduate Statistics, Marine Population Dynamics and demonstrated experience on the provision of scientific advice for Fisheries Management.
- Experience in R or/and Excel.
- Planned participation in 2017 bluefin tuna assessment.
- Excellent working knowledge of one of the three official languages of ICCAT (English, French and Spanish). A high level of knowledge of English is anyway necessary, because the training course will be held in English.

Request for candidatures

Interested candidates should submit their candidature to the attention of Mr. Driss Meski, the Executive Secretary to ICCAT (driss.meski@iccat.int) by **14 December 2016**, including:

a) The *Curriculum vitae* of the candidate.
b) Declaration about the existence of the requisites.

c) The name, address, e-mail address and telephone number of the candidate.

d) Acknowledgment of this Call for Tenders.

e) A statement specifying the extent of agreement with all terms, conditions, and provisions herein included.

Candidates that fail to provide 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 candidatures. Following the selection process, the ICCAT Executive Secretary will notify the selected candidates as soon as possible.

Payment details

ICCAT GBYP will pay the following amounts to the selected candidates:

- reimbursement of the travel costs (in Economy class), following the presentation of the tickets, and boarding passes;

- full *per-diem* according to the ICCAT Administrative rules.

Logistics

All selected candidates shall have their personal portable computer, having a sufficient memory capacity, with Excel and R software already installed. It is possible that various material, tests and trials will also be circulated preliminary to the course.

For further information concerning this Call for Tenders, please contact the ICCAT GBYP Coordinator at the following address: antonio.dinatale@iccat.int

ICCAT GBYP VPA TRAINING COURSE – MODELLING APPROACHES, GBYP PHASE 6
Virtual Population Analysis:
Theory and Application to Atlantic Bluefin Tuna

Brief Course Description

The course will begin with a review of the mathematical theory behind tuned virtual population analysis, the calculation of biological reference points, and forecasting the abundance of the stock under different catch quotas and model assumptions. Participants will then operate in teams in a workshop environment similar to an actual bluefin tuna stock assessment, where they will prepare for the 2017 assessment by conducting their own analyses using the VPA-2BOX and PRO-2BOX software, and prepare a summary of the proposed management advice. Techniques for modeling two intermixing stocks will also be discussed as time permits. The agenda may change depending on the expertise of attendees.

Tentative draft agenda

Day 1

Morning: Theory of Virtual Population analysis

1.1   Conceptual framework, goals and objectives of stock assessment.
1.2   Basic catch equation and concept of cohort analysis
1.3   VPA and the backwards recursion
1.4   Estimating terminal F/N parameters in VPA from auxiliary data (e.g. indices)
1.5   Hands on session: Simple spreadsheet application of tuned VPA

Afternoon: Theory of reference points

1.6   Concept of surplus-production
1.7   Types of reference points
    1.7.1   Per-recruit (Fmax, F0.1)
    1.7.2   SPR
    1.7.3   MSY
1.8   Concepts on forecasting
1.9   Hands on session: Simple spreadsheet application of forecasts (projections) from VPA output

Day 2

Morning: Setting up VPA for bluefin tuna

2.1   Introduction to VPA-2BOX software
2.2   Hands on exercise: setting up the input files
2.3   Using R to automatically set up the input files

Afternoon: Running the VPA

2.4   Parameter estimation options
2.5   Hands on exercise: basic configurations-try to estimate everything
2.6   Diagnostics
    2.6.1   Parameter estimate CVs
    2.6.2   Chi-Square
    2.6.3   Retrospective
    2.6.4   Bootstrapping
2.7   Hands on exercise: ways to estimate fewer parameters
2.8   Using R to read the VPA output files and produce the main figures and tables of the stock assessment

Day 3

Morning: Sensitivity analyses

3.1   Jackknife analyses on CPUE indices
3.2   Impact of VPA parameter specifications on the stock assessment outputs

Afternoon: Projections/forecasts

3.3   Introduction to pro-2box software.
3.4   Hands on exercise: setting up the input files
3.5   Using R to set up the projection files and produce output figures and tables

Day 4

Morning:

4.1   Analyzing the VPA outputs and basic checks (residuals analyses, retrospective analyses, etc.)
4.2   Developing management advice

Afternoon:

4.3   Other topics: including mixing in the VPA
4.4   Developing management advice

Day 5

All day: Preparing the 2017 BFT stock assessment

5.1   Main changes planned for the 2017 stock assessment (maturity, new CAA for East, etc.)
5.2   Comparison to other stock assessment model: Stock Synthesis