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, 30 April 2021

ICCAT CIRCULAR # 2821 / 2021

SUBJECT: MSE COURSES SPANISH-PORTUGUESE SPEAKING SCIENTISTS FUNDED BY JCAP2

The ICCAT/Japan Capacity-Building Assistance Project, within its phase 2 (JCAP-2), has recently approved a proposal submitted by Brazil to build capacity on **Management Strategy Evaluation** (MSE) methods, from the theory to practice, for fisheries scientists, managers and stakeholders, from Latin-American countries, as well as other Portuguese and Spanish speaking countries members of ICCAT.

This will be achieved by providing three courses on MSE. Course 1 aims to provide general information about the philosophy and concepts of MSE, and is tentatively scheduled to take place online from **3-6 August 2021**. Course 2 will focus on the implementation of MSE methods using different tools and will also be held online from **23-27 August 2021**. These two first courses were designed for an audience of researchers/scientists, moving from the theory to practical thinking. Additional information on the courses, which will have a **limited number of participants**, is attached to this circular.

Course 3 will provide a presentation of the philosophy, concepts and a study case, based on the initial results observed and presented at the last ICCAT meeting on MSE for the western skipjack tuna stock. Further information on the course schedule will be provided at a later date.

Scientists from Latin-American countries, as well as other Portuguese and Spanish speaking countries members of ICCAT, who are interested in attending courses 1 and 2, should express their interest by sending an e-mail to the coordinator of the capacity building initiative, Dr Fabio Hazin (fhvhazin@gmail.com), copying in the Secretariat (info@iccat.int), with a brief explanation of the reasons for their interest and a summarised CV, by **18 June 2021 at the latest**.

We would very much appreciate if you could circulate this announcement to any scientist who may fulfil the requirements and be interested in participating in these MSE courses.

Please accept the assurances of my highest consideration.

Executive Secretary

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Camille Jean Pierre Manel

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Attachment: Additional information on the courses structure and content.

ADDITIONAL INFORMATION ON THE COURSES

Course 1: MSE Philosophy and Concepts

a. Instructors

Blue Matter Science Ltd, a company that has expertise on the implementation of Management Strategy Evaluation (MSE) frameworks, on the design of management procedures (Harvest strategies), on the evaluation of data-limited fisheries, and on development and review of stock assessment models. The course will require two trainers: one to lead the presentation of the course material, and a second to monitor the online chat, to respond to queries, and to provide additional inputs.

b. Prerequisites

None.

c. Course outline

Course 1 is designed for participants from a wide range of backgrounds and experience, including fisheries managers, scientists, students and researchers, and other interested stakeholders (e.g., representatives from the fishing industry and environmental NGOs).

This course will introduce the philosophy, concepts, and terminology of MSE, explaining and demonstrating how MSE is used to address problems in fisheries management. The course will use case studies to show how MSE has been applied to various problems in tuna fisheries around the world.

d. Course Goals

Participants in this course will:

- Understand what management strategy evaluation is, and how it can be used to address many management problems in tuna fisheries;
- Be familiar with the key concepts and terminology of MSE;
- Understand the concept of closed-loop simulation testing, and how MSE is used to evaluate the performance of alternative management approaches;
- Have the necessary background and training to pursue further capacity-building training in the technical aspects of using MSE.

e. Duration

The syllabus of this course is designed to run in 6 hours.

f. Draft curriculum outline

Module	Content	Time (minutes)
• Overview of course	Introduction Welcome Introductions of participants & trainers	30
• Introduction to Management Strategy Evaluation	What is MSE? What problems can MSE be used for? How is MSE different to stock assessment? Alternatives to MSE?	60
• Key Concepts in MSE – Part I	Operating Models Management Procedures Management Objectives and Performance Metrics	60
• Key Concepts in MSE – Part II	Closed-Loop Simulation Testing Evaluating Performance Robustness Testing	60
• Case Study I	Case study demonstrating how MSE has been applied to address real world problem (e.g. identify and select a management procedure)	45
• Case Study II	Second case study demonstrating how MSE has been applied to address real world problem (e.g. robustness testing to climate change)	45
• Conclusion	Revision of material covered in previous 6 modules Overview of available tools for conducting MSE Questions and Discussion	60
		Total 6 hours

Course 2: MSE in Practice

Instructors

Blue Matter Science Ltd, a company that has expertise on the implementation of Management Strategy Evaluation (MSE) frameworks, on the design of management procedures (Harvest strategies), on the evaluation of data-limited fisheries, and on development and review of stock assessment models.

The course delivery will require two trainers: one to lead the presentation of the course material, and a second to monitor the online chat, to respond to queries, and to provide additional input.

Prerequisites

Completion of Course 1: MSE Philosophy and Concepts.

Course outline

Course 2 is designed for participants who have completed Course 1, and wish to understand more about the technical aspects of MSE. This course will use the openMSE R packages (MSEtool, DLMtool, and SAMtool) for applied training in MSE. It is highly recommended that participants are familiar with programming using the R statistical environment and the RStudio software.

The course will cover the technical aspects of MSE in R, including conditioning operating models with fishery data, understanding and developing management procedures, and evaluating the expected performance of the management procedures using closed-loop simulation testing.

Course Goals

Participant in this course will:

- Be familiar with the openMSE packages (MSEtool, DLMtool, and SAMtool), the open source R packages designed for efficient and transparent building of operating models and conducting MSE;
- Learn how to build operating models for a range of tuna fisheries spanning from data-poor to data-rich;
- Be familiar with a range of types of management procedures, and learn how to develop custom management procedures in MSEtool;
- Use MSE to evaluate the performance of management procedures for a case study based on a chosen tuna fishery;
- Understand how to conduct robustness testing against climate change and ecosystem effects.

Duration

The syllabus of this course is designed to run in 12 hours.

Draft curriculum outline

Module	Content	Time (minutes)
1. Introduction to the openMSE Packages	• Welcome & Overview of course • Introduction to the openMSE R packages (MSEtool, DLMtool, SAMtool) • Overview of key features, objects, and functions • Brief demonstration of conducting MSE using MSEtool	60
2. Details of the Operating Model	• Operating Model objects • Overview of the population dynamics, fleet dynamics, observation, and implementation models • Key assumptions • Other features not covered in this course (multi-stock MSE, bio-economic model)	120
3. Using Fishery Data	• Format of the fishery data for MSEtool • Importing data into MSEtool • Running management procedures • Calculating management advice	120
4. Developing Operating Models	• Building operating models for data-poor fisheries • Build operating models by importing stock assessments • Conditioning operating models with fishery data using the Rapid Conditioning Model (RCM) • Customizing the operating model (robustness testing, etc)	120
5. Management Procedures (MPs)	• Overview of MPs in the openMSE packages • Data-limited MPs (DLMtool) • Data-moderate and data-rich MPs (SAMtool) • Brief overview of designing custom MPs	120

6. Evaluating Performance and Robustness Testing Metrics	• Developing performance metrics from management objectives • How performance metrics are used to rank or eliminate MPs • Running the MSE (case study from Module 3) • Examining Results • Robustness Testing	120
7. Conclusion	• Revision of material covered in previous 7 modules • Questions and Discussion	60

Total 12 hours