Training Course on **Quantitative Fisheries Science using FLR and a4a**

European Commission Joint Research Centre

24-28 August 2015. Ispra, Italy

The Maritime Affairs Unit of the European Commission Joint Research Centre (JRC Ispra), Institute for the Protection and Security of the Citizen (IPSC) is pleased to announce a the third edition of the training course **Quantitative Fisheries Science using FLR and a4a** which will introduce fisheries scientists to the use and application of the tools developed by the FLR project (http://flr-project.org) and the a4a Initiative (https://fishreg.jrc.ec.europa.eu/web/a4a) for the quantitative analysis of fisheries data and the provision of advice on stock status and management.

The FLR library is a collection of tools in the R statistical language that facilitates the construction of bio-economic simulation models of fisheries and ecological sytems. It is a generic toolbox, but is specifically suited for the construction of simulation models for evaluations of fisheries management strategies. The FLR library is under development by researchers across a number of laboratories and universities.

The a4a Initiative has develoiped a series of models and computational tools that can be applied rapidly to a large number of stocks, without requiring a strong statistical technical background, but making use of the technical knowledge on the fisheries, stocks and ecosystem characteristics

The course will introduce the basic structure of FLR, familiarize users with the available procedures and methods, cover the most important steps of interest to participants in stock assessment working groups, and present the ways in which FLR code can be adapted and extended to your needs. This will include the use of FLa4a package, which implements the a4a model as part of FLR.

DATES & VENUE

This course will take place over 8 half-day sessions, on 24-28 August 2015 at the Joint Research Centre in Ispra, Italy. The course will start at 13.00 on Monday, 24 August, and end at 12.00 on Friday 28 August 2015.

Shuttle transport will be organized from Milano airports (MXP, LIN) or train stations to Ispra.

A block booking will be available at Hotel Europa, Ispra (), but participoants are free to make their own arrangements.

REQUIREMENTS

The course is designed for a maximum of 25 participants. The working language is English. Participants are expected to be familiar with fisheries models, and fluent in the R statistical language.

Participants are required to bring their own laptops to connect to a local area network. They should be able to install software and additional packages.

ADMISSION AND REGISTRATION

Please register online at https://web.jrc.ec.europa.eu/rem/. Deadline for submission of applications is **1 July 2015**.

There is no course fee, but participants must cover their travel and living expenses.

INSTRUCTORS

- Ernesto Jardim, EC JRC - Maritime Affairs Unit (IPSC)
- Iago Mosqueira, EC JRC - Maritime Affairs Unit (IPSC)
- Giacomo Chato Osio, EC JRC - Maritime Affairs Unit (IPSC)
- Nekane Alzorriz, EC JRC - Maritime Affairs Unit (IPSC)

PROGRAMME

1. Introduction to R and FLR
   - Setting up FLR
     - Design, classes & methods
     - Basic and complex classes for fisheries data
2. Using FLR
   - Creating and combining FLR objects
     - Loading & manipulating your own data

- Plotting

3. Fitting models

   - Non-linear fitting of stock-recruitment model
     - Tools for exploring likelihood space
     - Forecasting recruitment
     - Introducing uncertainty in recruitment

4. Stock assessment using biomass dynamics models
5. Stock assessment with age-structured models

   - Statistical catch-at-age
     - Virtual Population Analysis

6. Forecasting stock status

   - Short and medium term forecasts
     - Introducing uncertainty

7. example case studies * CS 1: Stock assessment, management advice and forecasting uncertainty * CS 2: Simulation tools for fisheries advice
8. Extended tools

   - Handling big data and long processes
   - Documenting your work
     - R & FLR programming

MORE INFORMATION

For more information please contact Iago Mosqueira, iago.mosqueira@jrc.ec.europa.eu, or Ernesto Jardim, ernesto.jardim@jrc.ec.europa.eu.