ICES Training programme

The International Council for the Exploration of the Sea (ICES) offers courses led by high-profile scientists and instructors. Visit the Training web page: www.ices.dk/iceswork/training/training.asp.

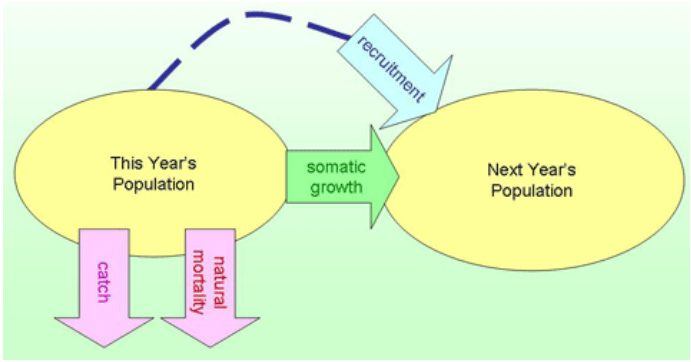
Stock assessment (Introduction)

Context and level

This course provides instruction, demonstration, and exercises in population modelling as applied to fishery resources. Stock assessment synthesizes information on life history, fishery monitoring, and resource surveys, using mathematical models of population dynamics. Results from stock assessments are used to determine stock size and sustainability of the fishery, and evaluate the consequences of alternative fishery management actions. First principles of population dynamics are reviewed from the perspective of modelling biological production, and several dimensions of complexity are explored. A wide range of conventional stock assessment methods are introduced.

The course has two general goals. The first is to provide a sound foundation in the fundamentals of stock assessment. Stock assessment modelling is advancing at a rapid pace. However, understanding the basics of population dynamics is necessary to develop an intuition for fishery models, for accurate interpretation and appropriate model development. Therefore, we will emphasize a conceptual understanding, supported by quantitative applications that are designed to illustrate model properties.

The second goal of the course is to prepare students to take the next steps in a stock assessment career: learning the advanced aspects needed for their particular applications. The ICES Training Program also includes courses in advanced stock assessment, Bayesian techniques for stock assessment, Management Strategy Evaluation, and Ecosystem Modelling for Fisheries Management. Therefore, advanced topics and programming skills will be introduced in preparation for more advanced ICES courses or to approach the same topics through self-learning.



Objective

The general objective of the course is to train stock-assessment scientists and advisors in basic population dynamics and stock assessment. The course is intended not only to present the theoretical elements but also to guide participants in putting theory into practice through case studies and hands-on exercises on the computer. Specific objectives are

1) understanding the role of stock assessment in fishery science;
2) familiarity with conventional stock assessment models;
3) experience in basic model building and parameter estimation.

By the end of the course, the participants will

- be aware of single species assessment methods as applied to North Atlantic fisheries;
- understand the data-collection needs for different assessment methods;
- be familiar with indicators and reference points, both biological and economic, as tools in fishery management;
- develop knowledge of population and fishery processes by using simulation models to improve scientific advice for managers.

Course dates

20–24 June 2011

Venue

International Council for the Exploration of the Sea
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DK-1553 Copenhagen V
Denmark
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info@ices.dk
You can find more information about:
ICES HQ here
Hotels close to ICES here
The hostel next to ICES here

Fee

The fee for the course is €500. This covers only tuition fee.

Organization

The course is organized by the ICES Secretariat as part of the ICES Training programme.

The course and course materials are provided by Steve Cadrin, UMass School for Marine Science & Technology, assisted by Iago Mosqueira, CEFAS Systems Modeling.

The course includes applied examples, case studies, and hand-on exercises on the computer.

Participants are required to **bring their own laptops** to connect to ICES network, with Excel, Excel Solver, and the program "R" installed.

Admission and registration

The course is designed for a maximum of 30 participants. The working language is English.

Please use the on-line registration. You will receive a message acknowledging receipt of your application within one week.

The deadline for the submission of applications is

29 April 2011.

Programme

The five-day course is organized as a series of morning sessions that focus on theoretical concepts and afternoon sessions that focus on more applied concepts associated with assignments and work sessions. All assignments will be completed in MS Excel, but the same analyses will be demonstrated in R, an open-source, statistical programming language (see flr-project.org).

Day	Lecture	Topic
Monday	1	Introduction & objectives
	2	Model fitting
		Assignment: Stock–recruit
Tuesday	3	Biological production
	4	Biomass dynamics
		Assignment: Production
Wednesday	5	Demographics
	6	Virtual population analysis
		Assignment: VPA
Thursday	7	Simulation
	8	Statistical catch-at-age
		Assignment: SCAA
Friday	9	Reference points
	10	Projection
		Assignment: MSY

Instructors

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